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QUARTERLY PROGRESS REPORT No. 5

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Covering the period 1 April 1979 to 31 June 1979
Report Issued: 12 July 1979

JPL Contract No. 954977

MATERIALS RESEARCH, INC.
790 East 700 South Street
Centerville, Utah 84014
Phone: (801) 531-9600

The JPL Low-Cost Silicon Solar Array Project is sponsored by the U.S. Department of Energy and froms part of the Solar Photovoltaic Conversion Program to initiate a major effort toward the development of low-cost solar arrays. This work was performed for the Jet Propulsion Laboratory, California Institute of Technology, by agreement between NASA and DOE.

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TECHNICAL CONTENT STATEMENT

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Department of Energy, nor any of their employees, nor any of their contractors, subcontractors, or their employees, make any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

NEW TECHNOLOGY

No new technology is reportable for the period covered by this report.

C O N T E N T S

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SECTION I

S U M M A R Y

During this reporting period a computer program was written for the PDP 11/03 computer that controls the Quantimet 720 Image Analyzing System (QTM 720). This program will facilitate the analysis of silicon samples on the upgraded Quantimet 720 System.

Also during this period thirty-two (32) Motorola samples were analyzed for twin boundaries, dislocation pits, and grain boundaries.

A discussion of the computer program and the data obtained from the thirty-two (32) Motorola samples is contained in this report.

The use of the Image Editor on the QTM 720 detected image is also described herein.

SECTION II

INTRODUCTION

The objective of this program is to evaluate and, if possible, predict conversion efficiency for a variety of silicon samples with differences in structural defects, such as grain boundaries, twin boundaries, precipitate particles, dislocations, etc. Quantitative characterization of these structural defects, which have been revealed by etching the surface of silicon samples, can then be performed by using a Quantimet 720 Image Analyzer.

The silicon samples have been obtained by JPL from different manufacturers. Each of these manufacturers use their own crystal growth and fabrication techniques and, therefore, the various types of silicon produced contain a variety of trace impurity elements and structural defects. The two most important criteria in evaluating the various silicon types for solar cell applications are: (i) cost and (ii) conversion efficiency. At present, the solar cells with highest conversion efficiency are made of high purity silicon single crystals, which are free from structural defects such as dislocations, twin boundaries, precipitate particles, etc. But these single crystal solar cells are very expensive and may not meet the DOE goal of 50 cent/watt by 1986. On the other hand, silicon crystals such as EFG ribbons, Dendritic Webs, etc., are NOT single crystals but made of highly ordered crystals which contain large number of dislocations, twin boundaries, grain boundaries, precipitates, etc., compared to the premium grade silicon.

The following important questions must be answered to evaluate the conversion efficiency of low cost and high cost silicons: (i) what effect do these defects have on conversion efficiency of low cost and high cost silicons? (ii) Of the various types of defects, which defect/defects severely affects conversion efficiency? (iii) At what concentrations does this effect become significant? (iv) Is there a rapid, accurate, quantitative method that can be used routinely as a Quality Assurance tool?

Quantitative analysis of surface defects is being performed by using a Quantimet 720 Quantitative Image Analyzer. This system can differentiate and count 67 shades of gray levels between black and white contrasts. In addition, it can characterize structural defects by measuring their length, perimeter, area, density, spatial distribution, frequency distribution (in any preselected direction), and so on. However, the Quantitative Image Analyzer is extremely sensitive to optical contrasts of various defects. Therefore, to obtain reproducible results, the contrasts produced by various defects must be similar and uniform for each defect types along the entire surface area of samples to be analyzed. To achieve this, a chemical cleaning and polishing technique has now been perfected for silicon samples from Mobil Tyco, Wacker, IBM, and Motorola. The cleaning and polishing preparation technique produces a very clean and even surface for silicon crystals suitable for anlyses by the QTM 720 Image Analyzer. We are now obtaining quantitative information from a variety of silicon crystals. Quantitative data on 32 Motorola samples are given in this report.

SECTION III

CHEMICAL POLISHING AND ETCHING OF MOTOROLA SAMPLES

CHEMICAL POLISHING:

In our previous Quarterly Report[1] and One-Time Report[2] on Crystal Etching Preparation technique, we have discussed in detail the procedures of chemical polishing and chemical etching. These techniques were perfected for Wacker, IBM, Mobil Tyco, and Motorola samples.

The results of chemical polishing of Motorola samples are summarized in Table 1. It may be observed from Table 1 that the polishing temperature of $50^{\circ} \pm 3^{\circ}C$ and polishing time of 35-45 seconds are acceptable for the Motorola samples. However, the Wacker samples require 80-85 seconds, the IBM samples require 30 seconds, and the Mobil Tyco samples require 45 seconds for polishing.

CHEMICAL ETCHING:

We have discussed in detail the composition and variation of the etching solution, the etching procedure, and the variation of the etching times in our previous reports[1,2]. Etching Solution III was used to distinctly reveal the structural defects such as grain boundaries, twin boundaries, and dislocation pits for IBM, Wacker, Mobil Tyco, and Motorola samples. This etching solution contained 10 g CrO_3 in 60 ml deionized water and 60 ml concentrated HF.

All the Mobil Tyco, IBM, and Motorola samples analyzed so far were etched for 50 seconds using Etching Solution III. The etching solution and etching time of 50 seconds were kept constant for all the samples. Since the samples were etched under identical conditions, the defect densities in these samples can be directly compared from one sample to another.

SECTION IV

TECHNICAL DISCUSSION

Chemical polishing and chemical etching of thirty-two (32) Motorola samples were completed in the current reporting period. These samples were then analyzed for twin boundaries, grain boundaries, and dislocation pits.

Procedures for QTM analysis, method of selecting fields, and explanation of teletype printouts are discussed below.

Measurement of Twins and Dislocation Pits:

In the Motorola samples, most of the twins are oriented parallel to one another and run from one edge of the wafer to the opposite edge (parallel to the longitudinal axis of the silicon ribbon). Therefore, in order to measure twin density, 50 fields were chosen along the central transverse axis of the sample. In other words, the central transverse axis is perpendicular to the twins. The distance between each of these 50 fields where measurements for twins were made was 0.31 mm. The long dimension of each field is 0.30 mm. Thus, each of these fields are adjacent to one another by a distance of 0.01 mm and, therefore, do not overlap one another. It is important that the fields do not overlap, since the same twin should not be counted twice. At the same time, the fields must be close to one another so that almost all the twins are counted by the QTM. On the other hand, counting may also be done using a square raster of 50 fields distributed evenly over the entire sample surface. In this case, the horizontal distance separating each field will be 2.5 mm, which is much larger than the long dimension of the frame i.e., 0.30 mm. Therefore, under the method of square raster, there is a possibility that areas in the sample where the twin or dislocation density is very high may not be counted. This will result in large errors.

Therefore, all the 50 fields were counted along the central transverse axis of the sample.

It has also been found that the density of dislocation pits in the Motorola samples have longitudinal symmetry similar to the twins[1]. Therefore, for dislocation pit density measurements, all the fifty fields were chosen along the central transverse axis of the Motorola silicon samples.

Measurement of Average Area of Twins and Dislocation Pits:

Before measurements were made for twins, each sample was scanned to determine manually the average area of one twin. The method of determining the average twin area is as follows: First, the sample surface was randomly scanned, and those fields were selected where the twins were not touching each other. Each field, generally containing more the 5 distinct twins, were then displayed on the display module of the QTM. The total area of all the twins in each field was determined and divided by the number of twins in that field to get the average twin area for that field. The average twin area was then determined in an additional 4 fields. The arithmetic average was then calculated from the average twin area in these five fields. Generally, 30 to 40 twins were used in 5 fields to get the average twin area. The same procedure was used to obtain the average dislocation pit area. The average twin area in each sample was then fed into the QTM Software. This is an important step to get the actual number of twins and dislocation pits, especially in areas where the densities of these defects are high and they touch one another. In order to verify that the average area of a twin so obtained was accurate, an additional six fields were selected at random where the twin density was high, and the twins were touching one another. The twin density in each of these six fields were counted manually, and also counted by the QTM using the average area of a twin. The entire procedure was repeated until close agreement was reached between manual counting and QTM counting. After this procedure,

measurements were then made on all the fields using the automatic QTM mode.

Explanation of Computer Printouts:

The QTM measurements for twins and dislocation pits on Motorola samples 1 to 32 are shown in attached computer printouts. In the computer printouts, the first paragraph shows the name of the computer program and date.

The second paragraph shows the MRI and JPL sample numbers.

The third paragraph lists; 1) the name/names of the operator; 2) magnification being used (800X); 3) units used i.e., mm for twins,and microns for dislocation pits; 4) calibrated equivalent value of one picture point in the units being used; 5) frame area used; 6) QTM output data was divided by 100 and corrected in the case of twin measurements to avoid frequent overflow problems in the Classifier-Collector. In the case of dislocation pits, the data was divided by 1 as indicated in the computer printouts; 7) average feature area (PP), for twins and dislocation pits.

All the information listed in the third paragraph of the computer printouts were fed into the computer on its command before collecting the data using the automatic mode.

The frame area of a standard frame in the QTM is 500,000 picture points (PP). In case of twins, the standard frame was used. However, during dislocation density measurements the uneven sample surfaces caused problems in focusing dislocation pits over the entire standard frame. Therefore, during dislocation density measurements half the standard frame (250,000 pp) was used. This is listed as "Frame Area" in the QTM data sheets. The unit of measurement was millimeter for twins, and microns for dislocation pits.

The fourth paragraph of the computer printout lists the titles for the different measurements, which are explained below:

FLD: (A, P, VP, HP) indicates the sequence number of the field in which measurements were made. The raw data in terms of picture points are also

shown in parentheses. The raw data listed is area, perimeter, vertical projection, and horizontal projection of the detected features in each field.

NO: denotes the total number of features detected in any field. This is obtained by dividing the total area of a feature by the average area of that feature.

NO./AREA: denotes the computed number of features/mm^2 or features/$microns^2$ in each field.

MFPV: denotes the mean free path in the vertical direction. This quantity is the frame area divided by the vertical projection of all detected features in the field(frame).

MFPH: denotes mean free path in the horizontal direction. This is the horizontal analogue of MFPV.

L/A: This quantity is length of detected features per unit area. The unit area is mm^2 in the case of twins, and $microns^2$ in the case of dislocation pits.

The quantity L/A is subject to large errors when twin bands are present. The QTM computes L/A by dividing the perimeter by 2. A twin band usually contains 20 to 100 individual twins, many of them touching one another. The QTM will compute L/A by dividing the perimeter of the twin band by 2. In other words, the QTM may count the entire twin band as one large area rather than consisting of several individual twins. Thus, L/A is subject to large errors and is underestimated by QTM.

The attached computer printouts show, after 25 and 50 fields, the computed values of average, standard deviation, and standard error for all data from field No. 1 onwards. This averaging can be done at any time during the course of the measurement.

The grain boundaries in each sample was counted under the binocular microscope using 7X magnification. Most of the grainboundaries were parallel or approximately parallel to the twins. In general, there were no complete

grains present in a sample, i.e. the grain boundaries were running from the bottom edge to the top edge of a sample.

Use of the QTM 720-PDP 11/03 System for Image Analysis:

Previous to the present work the QTM 720 was run in a semi-automated fashion[1], making use of a Hewlett-Packard Model 9810 programmable calculator interfaced to the system by means of a special QTM module, the Field Data Interface. In addition, the data output was printed on a conventional teletype. In the present configuration, a PDP11/03 with a Digital Equipment Corporation Writer (III) and a RX01 dual floppy disc drive is interfaced to the QTM-720. Two special QTM modules are used for the interfacing: a Field-Image-Feature Interface (FIFI) and a Control Interface (CI).

The FIFI links the QTM 720 to the PDP11 computer allowing high speed data transfer from the QTM directly into the memory of the PDP 11. The Control Interface permits QTM module switching instructions to be transferred from the PDP 11 directly to the QTM. Both FIFI and CI are under the control of BASIC language, and programs may be written on the PDP 11 to perform module switching, as well as data acquisition and analysis.

The following section gives specific instructions for the system operator so that, given a silicon wafer which has been properly polished and etched[2], the wafer is viewed with the microscope interfaced to the QTM 720 Image Analyzer. The following section gives detailed instructions to the operator for the actual sample run. Some of these instructions are identical with a previous report[5], however, they are modified in accordance with the new PDP 11/03 data acquisition system.

The following QTM 720 modules are used in the present system configuration:

ID Auto detector, MS-3 Standard Computer, two Function Computers, Classifier/ Collector, Varible Frame, Control Interface, Image Editor, Auto Focus, X-Y Stage Control, and the Field-Image-Feature Interface.

PREPARATION FOR SAMPLE RUN

1. Select proper objective on the microscope for desired magnification (a total optical magnification of X320 is normally used).
2. Adjust optics for "Kohler illumination," following steps in the microscope manual[3], if necessary. It is important that the field of view be uniformly illuminated so that features of interest will be detected uniformly.
3. Adjust the light intensity (with filters and/or lamp voltage) to obtain a reading of 1 on the white level meter with light sensitivity swith in MANUAL. The sensitivity is then set to AUTO.
4. Place the sample on a blank field of view and perform shade correction, setting the RANGE at about 10-11 o'clock. If a suitable blank field cannot be found, one may de-focus the field of view so that no distinct features may be identified, and a relatively uniform, featureless field is observed. For best results, the entire standard frame should be detected as uniformly as possible. (Light sensitivity switch should be in AUTO to perform shade correction.)
5. Place sample at the origin of the scan, which will be the lower left-hand corner of the sample. Make certain that the sample is firmly held to the stage. Select the size of the X-Y step on the automatic stage control. Generally, the X and Y steps will be of the same size (units are in mm). Determine the number of steps in a single row (X-direction). (The number of fields in a row is one greater than the number of X steps). After setting the number of steps on the automatic stage control, place control in AUTO and push ORIGIN. Whenever manual control of the stage is desired,

switch from AUTO to MANUAL. When returning to AUTO mode, stage must be at ORIGIN. Always set ORIGIN after pushing AUTO. At this time, set the Automatic Focusing module to AUTO and SKIP FIELDS to zero.

6. Determine the size of the Varible Frame to be used for scanning and position it. The product of the horizontal and vertical divisions (in picture points) will be the frame area called for at the beginning of the program.
7. There are two twisted-pair leads in the back of the FIFI module which feed into BIG FRAME OUT and VARIBLE FRAME OUT. It is necessary to interchange these leads if it is desired to perform measurements on grain and twin boundaries. It will be necessary to determine manually the average feature area (in pp) by sampling several fields throughout the sample. This value is called for in the program. (Note: The automatic stage will have to be placed in the MANUAL mode during this operation, followed by step 5 above.)
8. Set proper detection of the features in the field using the "flicker method" and the Detector Module.
9. The Standard Computer, both Function Computers, and the Classifier-Collector should be set to AUTO.

PREPARING THE PDP 11/03 FOR OPERATION OF THE QTM-720

1. Place the System floppy disc into the left-hand drive of the RX01 dual disc drive and the data file storage disc into the right hand drive. Turn on power to the PDP 11 and to the DECWRITER. "Boot" the system in the sequence ENABLE-DC-LTC. The symbol $ will appear on the DECWRITER.
2. Type DX <CR> and the message "RT-11SJ V02C-02H" will be returned.
3. Type the current date in the format DATE 06-Jun-79 <CR>.
4. Type R QBS203 <CR>, and the symbol * will be returned. Input a carriage return, <CR>, and the message "READY" will be typed out.
5. The current program for defect characterization of silicon is program DS2. Therefore, type OLD "DS2" <CR> and upon obtaining the "READY" response,

again type RUN <CR>.

6. The following steps describe where necessary the information called for as input data for the program:

HEADING - Any one line description of the current run.

PRINT FILE NAME . . . - This is the name of data file on the appropriate floppy disc where this run will be stored.

OPERATOR - Name of operator.

MAGNIFICATION

UNITS

CALIBRATION FACTOR (UNITS/PP)

FRAME AREA (PP) - The Standard Frame area is 500,000 pp.

QTM OUTPUT DATA DIVIDED BY - It may be necessary to use the classifier-collector module to divide the QTM output data by a power of ten if the OVERFLOW light comes on during sample analysis.

AVERAGE FEATURE AREA (PP) - This must be determined manually before the sample run.

7. The heading for the data output is now printed. The raw data in units of picture points will be typed out in parentheses for each field. These are the actual QTM measurements of the detected features within the frame area in the order: area, perimeter, vertical projection, and horizontal projection.

After the parameters are printed out for each field, a question mark is printed. If a carriage return, <CR>, is typed, the next field will be measured and printed out. However, if a D is typed, then the data acquired in the last field of measurement is deleted and the message "LAST FIELD DELETED" is printed.

If an A is typed in response to the question mark, the average of each parameter, along with its standard deviation and standard error of the mean, is printed. The average is taken for all measurements previous to this time, except for fields deleted. Following the average, the field numbers continue consecutively. The average values for Mean Free Path are determined by dividing the cumulative sum of the frame areas by the cumulative sum of the projection. In this case, standard deviation and standard error are not defined.

A flow chart of the program is shown (Fig. 2) together with a listing of the BASIC program (Table 6).

MANUAL INTERACTION WITH THE QTM 720

In many situations when analyzing silicon samples with the Quantimet 720, it is necessary to manually edit the image that is being detected. These include situations where extraneous features are present on the surface of the sample such as dust particles or stain marks. Also, due to the uneveness of the sample surface the entire area in a field cannot be focused, causing detection problems in the areas that are not in focus. In many cases cluster of dislocation pits are joined to the twin boundries causing the QTM to detect a larger twin area than is really present. In such cases, manual image editing can be used to overcome these problems.

Image editing on the QTM 720 is performed by the use of a light pen coupled with the Image Editing Module. The light pen is used to indicate on the QTM screen the areas or features that are to be edited or manually manipulated. The Image Editor is capable of specifing particular regions or features for measurement and rejecting others. The Image Editor is also capable of filling in imperfectly detected features or separating features that are touching.

The use of the Image Editor as it pertains to the analysis of silicon samples is illustrated by the photographs shown in Figures 4A through 6B.

The first three photographs,Figures 4A through 4C, show the operation of the image editor in the ACCEPT mode. The photograph in Figure 4A shows the QTM screen with the image of a polished and etched silicon sample displayed.* A large field of dislocations can be seen on the left side of the picture with a heavy band of twins running down the center. On the right side of the screen clusters of dislocation pits are present. The top of the QTM display screen indicates that the image editor is in the "ON" position, and in the ACCEPT mode, and also indicates the count in picture points of the features detected. In Figure 4A, the number 13 refers to the counts from the previous field and should be ignored. In Figure 4A, the light pen is shown being used to circle a region that is to be accepted for detection. When the DETECT switch is pushed on the QTM, the area that has been accepted is displayed on the screen while all other areas are not displayed. This is shown in Figure 4B. Only the features in this region will be counted by the QTM and all other features will be ignored. The photograph shown in Figure 4C shows the same specimen area with only the dislocation pits being accepted, and all the twins rejected.

The REJECT mode of the Image Editor operates in much the same way as the ACCEPT mode. This operation is illustrated in the photographs shown in Figures 5A through 5C. In Figures 5A, 5B and 5C the same specimen area is shown as in the previous photographs.

On the right side of the photograph in Figure 5A, the operators hand can be seen with the light pen circling an area to be rejected. In Figure 5B, the light pen is pointing towards the region that has been rejected. The features in this region are no longer displayed on the screen when the DETECT switch is pushed on, and these features are no longer counted. Figure 5C shows the same specimen area with most of the dislocation pits rejected leaving only the twins displayed. In these three Figures, 5A, 5B and 5C, the count of features detected

*Mobil Tyco # 53, JPL 145-7E, 5-745, SPEC. G.

in picture points is indicated as 87, 79 and 13 respectively. The detected feature count was being divided by 100 when these samples were analyzed. The actual number of counts in picture points are 8700, 7900 and 1300. The 1300 counts in Figure 6C are from the residual dislocation pits that have not been rejected. In order to determine the number of dislocations being counted, these numbers must be divided by the average feature area for dislocations, which range between 5 and 10 picture points depending on the sample.

The Image Editor can also be used to separate features which are touching one another. To do this, the Image Editor is put into the CUT mode. This is illustrated in the photographs in Figures 6A and 6B. Figure 6A shows a region containing dislocation pits with a single twin boundary running around the center. Some of the dislocations are touching the twin boundary and, therefore, are being included in the total twin area count. The twin area is indicated as 3183 picture points. In Figure 6B the light pen has been traced around the twin with the Image Editor in the CUT mode. This separates the twin from the adjoining dislocation pits. The feature area count is the 2870 picture points, which is the true area of this twin.

The Image Editor need not be used in the analysis of silicon samples if the sample surface is flat and well-polished. However, in samples that are uneven, or in samples where large fields of dislocations are connected with twins, image editing must be used to obtain accurate results.

SECTION V

RESULTS

The data from the analysis of thirty-two (32) Motorola samples are attached herein. For each sample there are two printouts, listing data separately for twins and dislocation pits. In addition to the printouts, data on twins, dislocation pits, and grain boundaries have been summarized in Tables 2 to 5 for ease of correlation and comparision. Figure 1 shows the position of the samples cut from the five ribbons and also lists the twin and dislocation densities of these samples.

Grain boundary length/cm^2 have been measured and computed for each sample using a binocular microscope at a magnification of 7X.

There is no clear cut relationship between twins, grain boundaries, and dislocation pits among these samples whether cut from the same ribbon or when samples from different ribbons are compared.

Specimens from the ribbon 6-840 contains the lowest twin and dislocation densities (especially, sample 6-840 G). This ribbon, however, has the highest grain boundary length/cm^2. In general the twin, dislocation pit, and grain boundary measurements for the other specimens taken from the ribbons 6-792, 6-837, 6-656 and 6-791 are comparable in magnitude.

There are large variations in the twin boundary, dislocation pit, and grain boundary measurements for individual samples from the same ribbon. For example, for the ribbon 6-840 the highest twin density is 1272.02 twins/mm^2 and the lowest twin density is 157.91 twins/mm^2. The highest dislocation density from this ribbon is .0129 dislocations/μm^2 and the lowest is .0014 dislocations/μm^2.

There seems to be no relationship between twin boundaries, dislocation pits, and grain boundaries with respect to the specimen position on the ribbon.

The reciprocal relationship between dislocation pits and twins that has been observed in other samples is not present in these samples, except perhaps from the specimens cut from ribbon 6-656, and here the relationship is not a clear cut one (See Figure 3).

SECTION VI

CONCLUSIONS

A new computer program written for the PDP 11/03 computer, for automated quantitative analysis of twin boundaries and dislocation pits on the upgraded Quantinet 720 Image Analyzer has been perfected and is now being used routinely.

Thirty-two (32) Motorola samples have been analyzed using this new program and the upgraded quantinet 720 system, and the data from these samples are listed herein.

The use of the Image Editor in the analysis of silicon samples is also described.

SECTION VII

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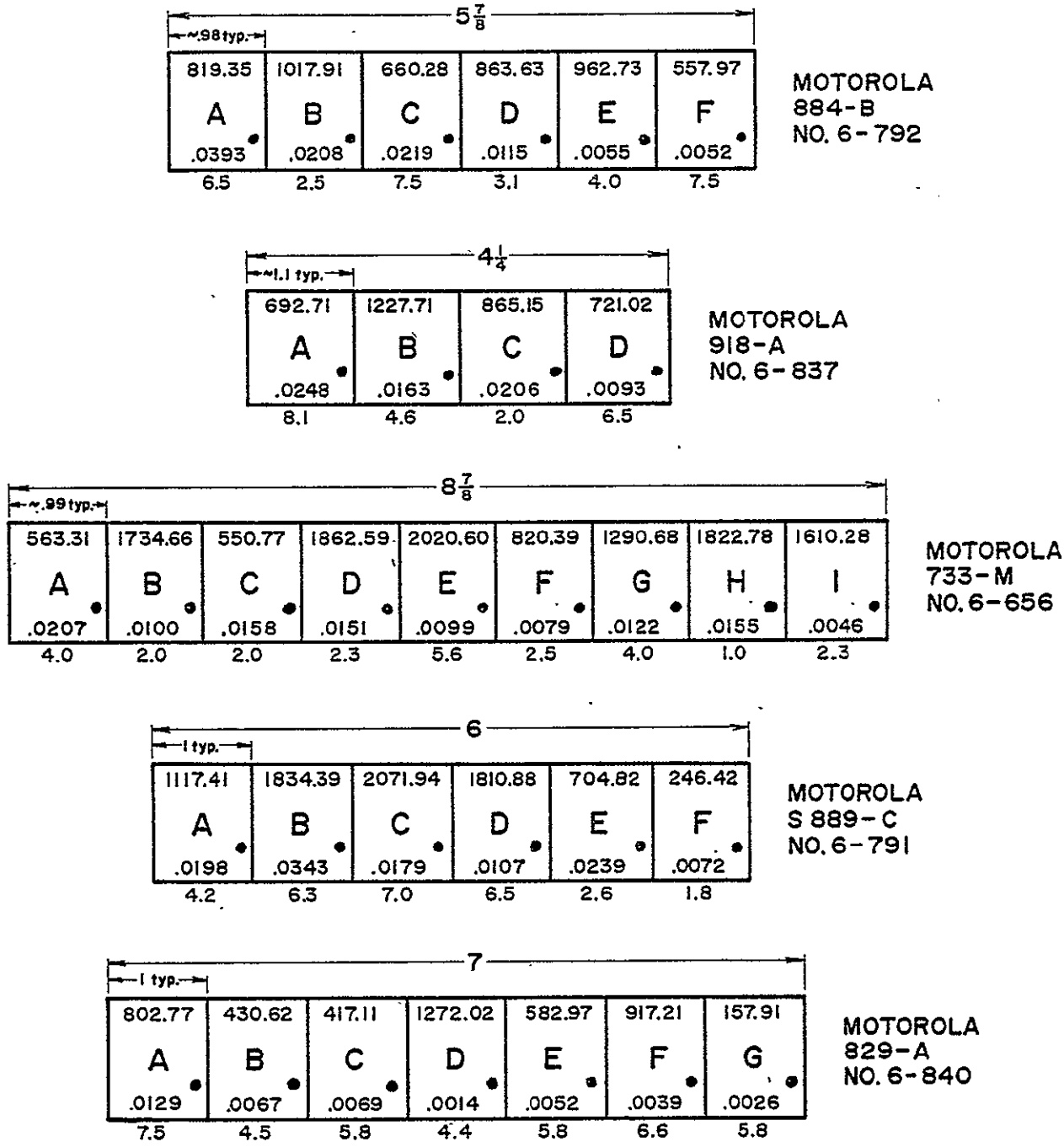


Figure 1. Schematic sketch showing location of 32 Motorola samples from five ribbons. In each square (representing a sample), the number at top represents average twin density/mm^2 and the number at bottom represents dislocation density/$microns^2$.

● These dots maintain proper orientation of the specimens during QTM analysis and also during solar cell fabrication to be done at a future date.

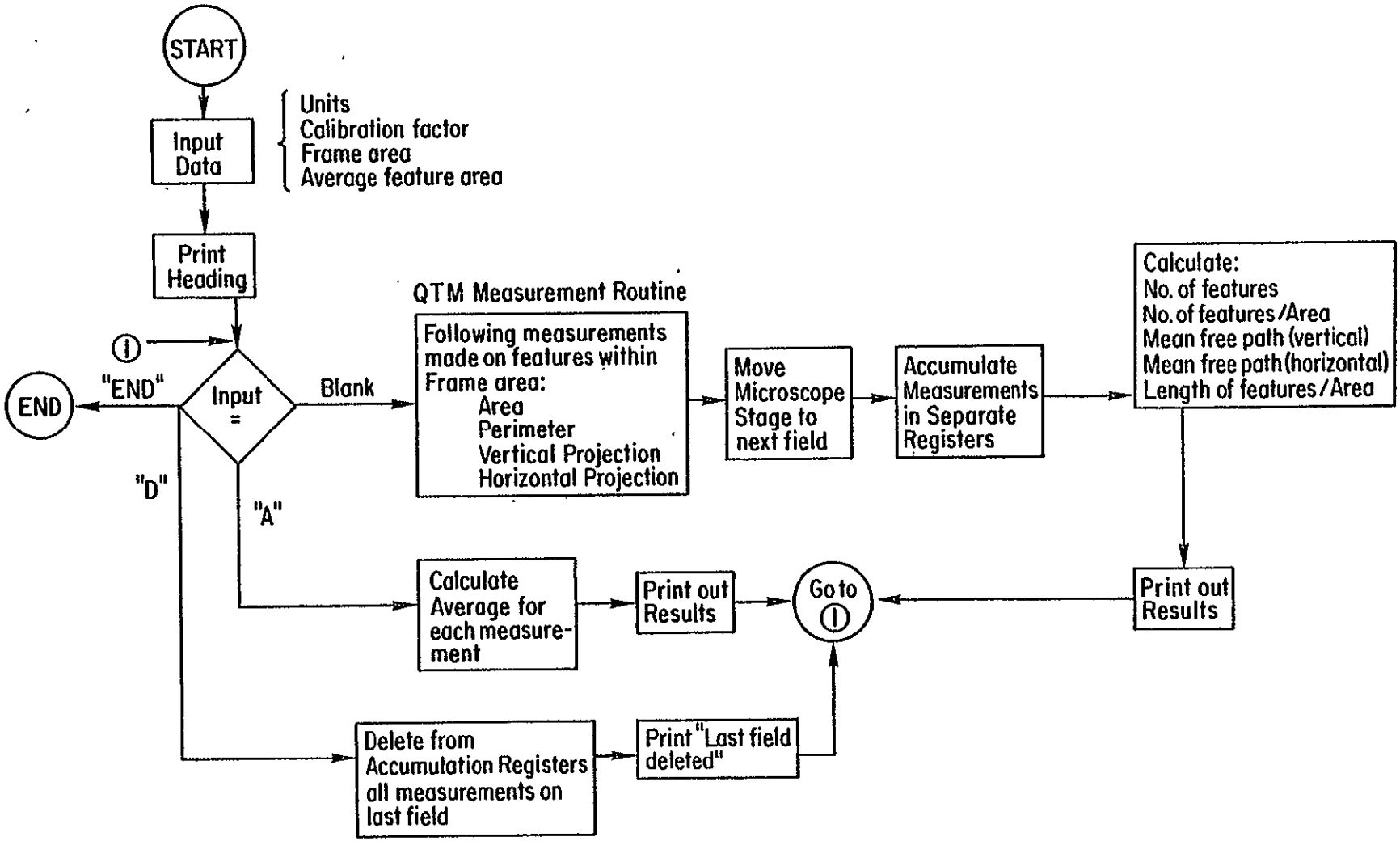


Figure 2. Flow Chart of BASIC Program for QTM Operation and Data Reduction.

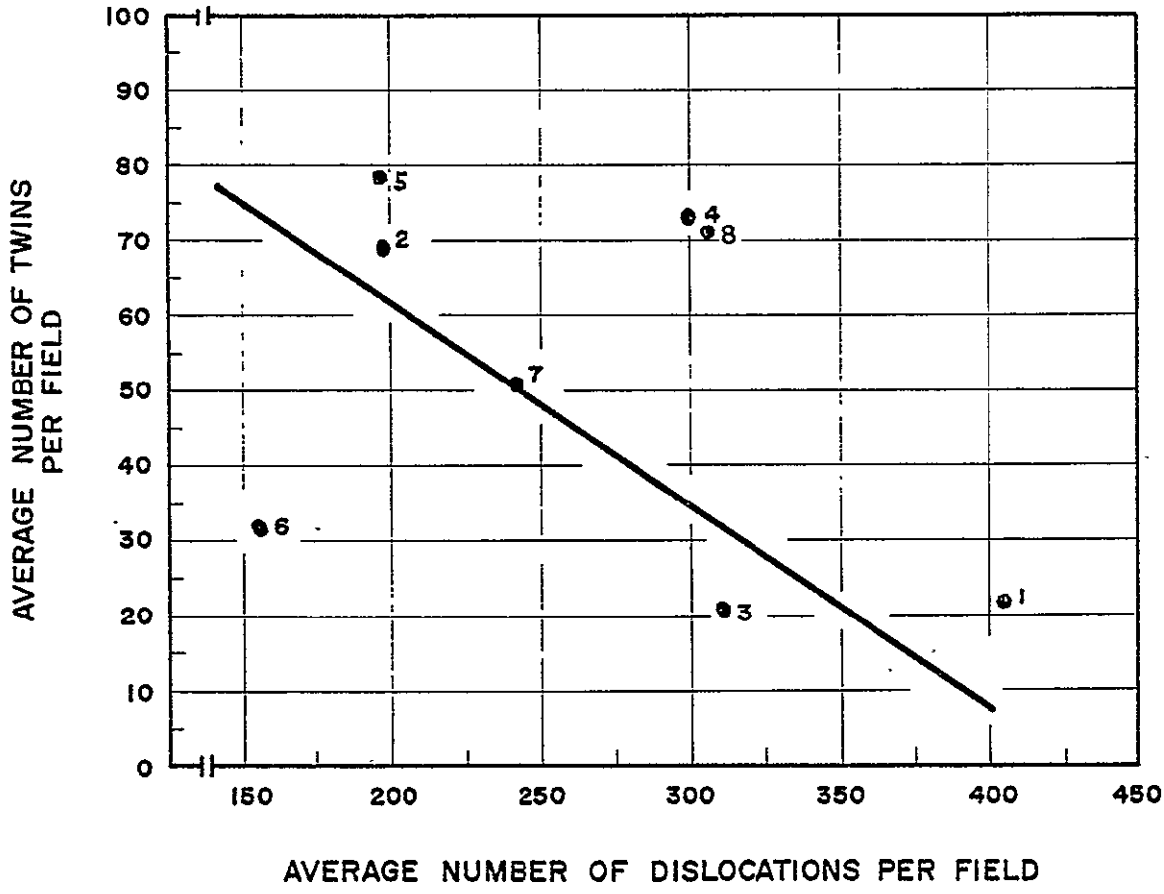


Figure 3. Graphical plot showing relationship between twin boundary density and dislocation density for Motorola silicon wafers. The identity of these test samples are given in Table 2, and the location of these test samples with respect to the Motorola Ribbon are given in Figure 1.

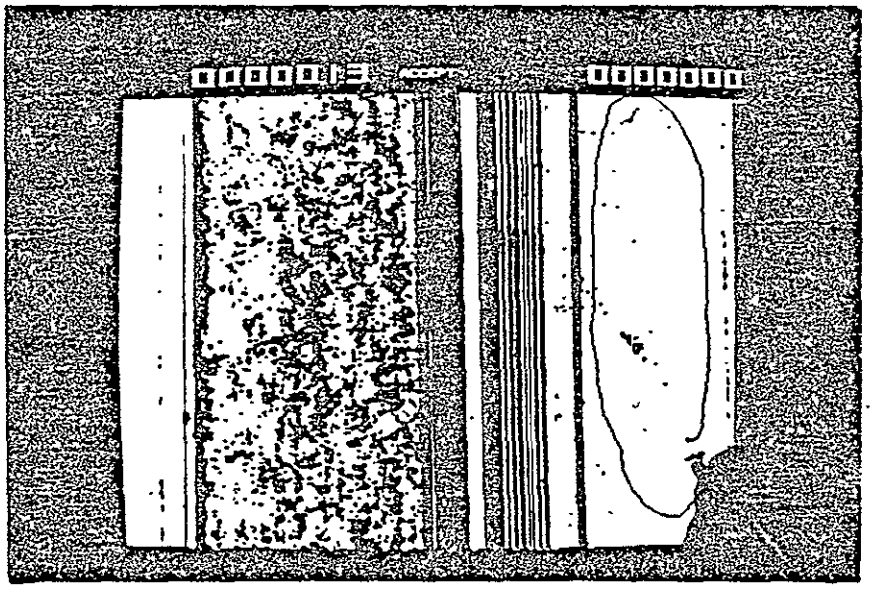


Figure 4A - Mobil Tyco # 53 - Field # 1
Photograph from QTM display screen
Mag. 800X

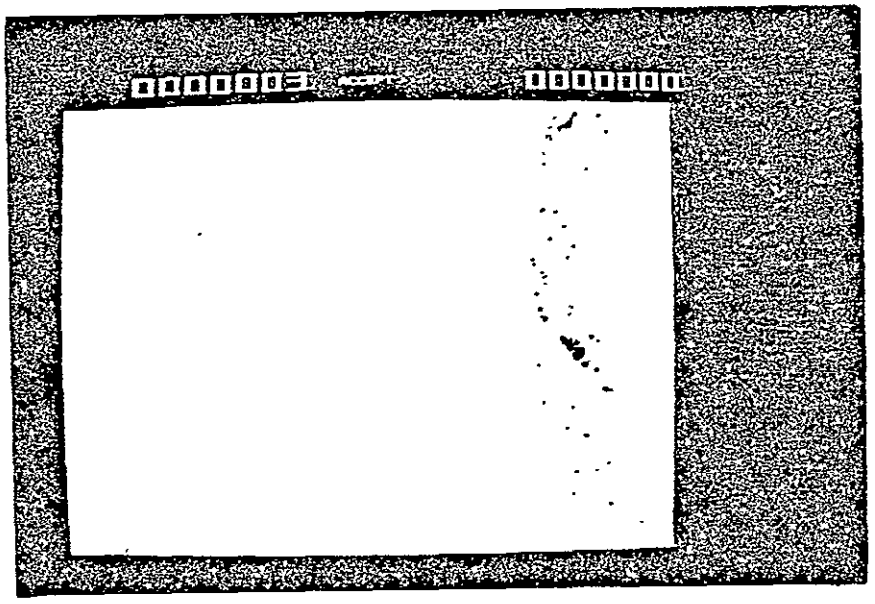


Figure 4B -Mobil Tyco # 53 - Field # 1
Photograph from QTM display screen showing only the area of the sample that has been accepted.
Mag. 800X

ORIGINAL PAGE IS
OF POOR QUALITY

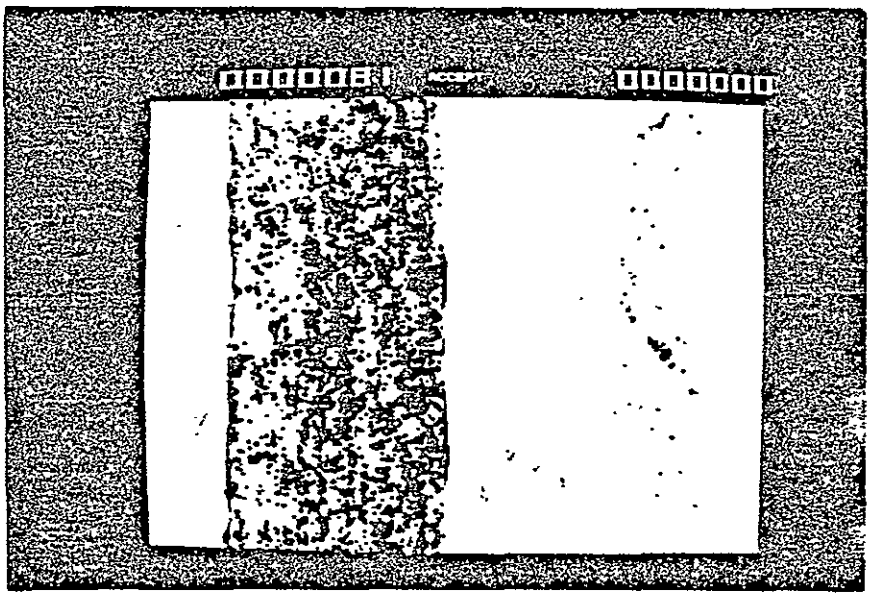


Figure 4C - Mobil Tyco # 53 - Field # 1
Photograph from QTM display screen showing dislocation pits only.
Mag. 800X

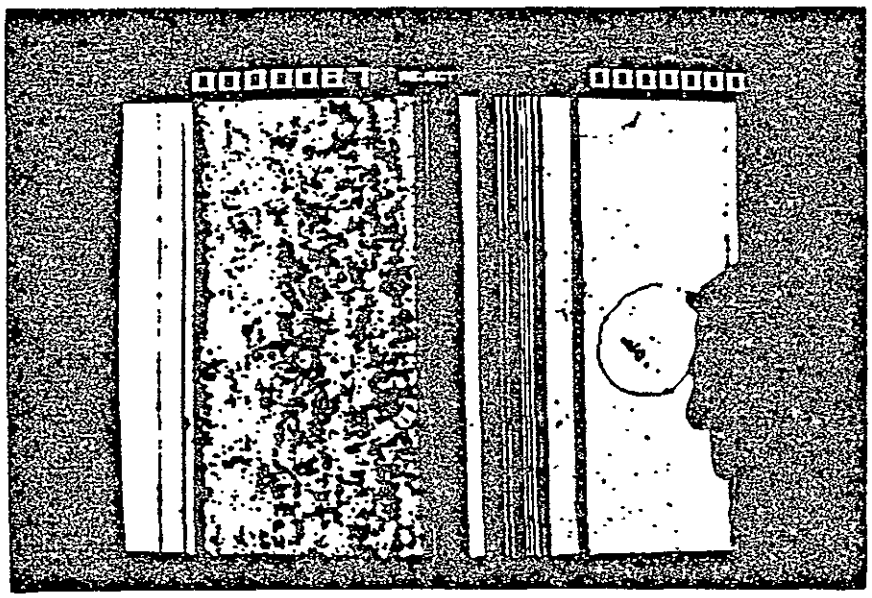


Figure 5A - Mobil Tyco # 53 - Field # 1
Photograph from QTM screen with an area being circled by the light pen.
Mag. 800X

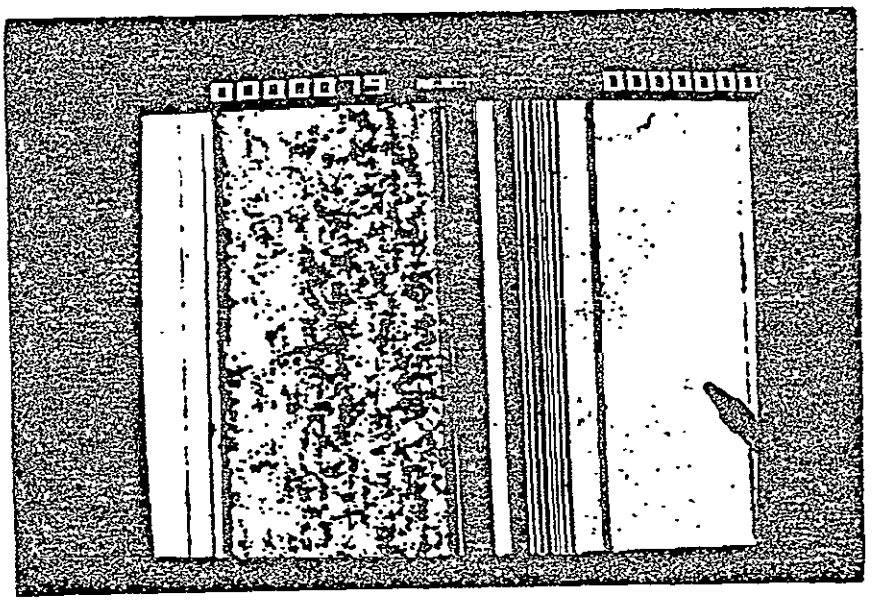


Figure 5B - Mobil Tyco # 53 - Field # 1
Photograph from QTM display screen showing a small region that has been rejected.
Mag. 800X

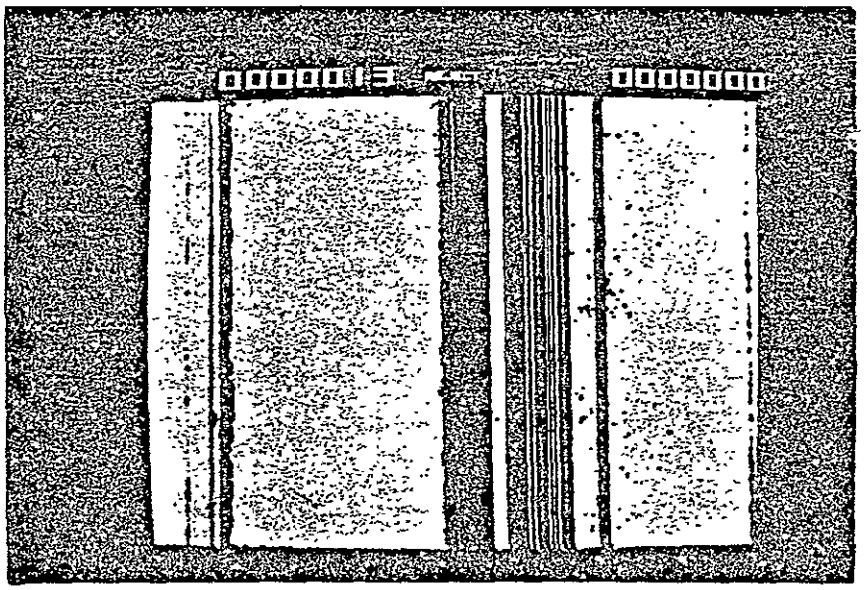


Figure 5C - Mobil Tyco # 53 - Field # 1
Photograph from QTM display screen showing only the twins. The dislocation pits have been rejected.
Mag. 800X

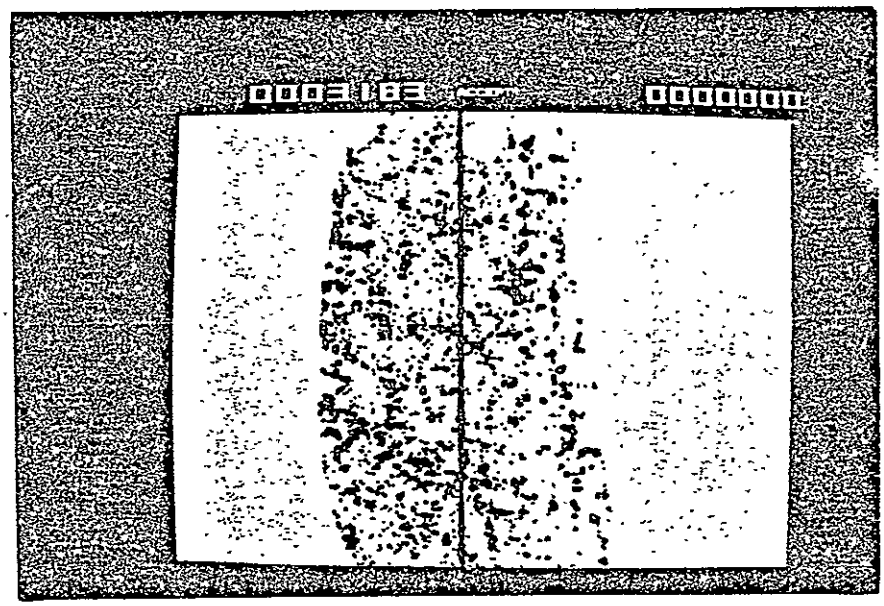
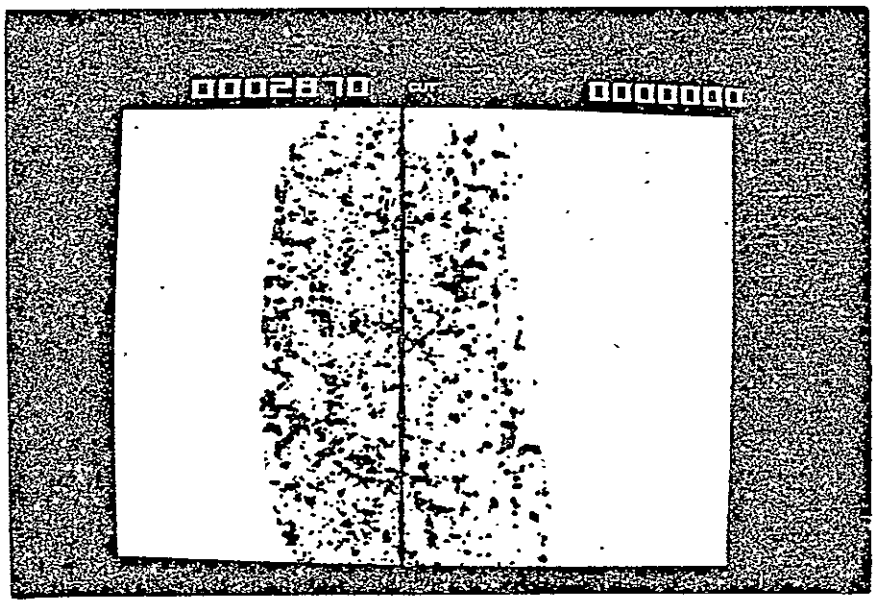


Figure 6A - Mobil Tyco # 53 - Field # 2
Photograph from QTM display screen showing an area of dislocation pits with one twin boundry.
Mag. 800X



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OF POOR QUALITY

Figure 6B - Mobil Tyco # 53 - Field # 2
Photograph from QTM display screen showing the same area as in Fig. 7G. The twin has been saparated from the dislocation pits by use of the image editor.
Mag. 800X

T A B L E 1

CHEMICAL POLISHING OF MOTOROLA SAMPLES

Polishing solution: mixture of HNO_3:HF:CH_3COOH = 1:2:3 by volume

Temperature (^{o}C)	Time (Sec.)	Surface Condition
50	30	Growth lines persist. Sub-grain type structures present
50	35-45	Good even polishing
50	50	Faceting develops

TABLE 2

ANALYSIS OF MOTOROLA SAMPLES

MR I Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm^2	Grain boundary length/cm^2	No. of Dislocation Pits/field	No. of Dislocation Pits/μm^2
1	6-656 A	21.02	563.31	0.48	406.58	.0207
2	6-656 B	67.99	1734.66	0.7	196.17	.0100
3	6-656 C	21.59	550.77	2.12	310.58	.0158
4	6-656 D	73.01	1862.59	1.25	300.47	.0151
5	6-656 E	79.20	2020.60	2.05	195.65	.0099
6	6-656 F	32.16	820.39	3.12	155.85	.0079
7	6-656 G	50.59	1290.68	2.96	240.21	.0122
8	6-656 H	71.45	1822.78	3.07	305.25	.0155

TABLE 3

ANALYSIS OF MOTOROLA SAMPLES

MR I Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm^2	Grain boundary length/cm^2	No. of Dislocation Pits/field	No. of Dislocation Pits/μm^2
9	6-656 I	63.12	1610.28	2.34	91.66	.0046
10	6-791 A	43.80	1117.41	0.54	388.44	.0198
11	6-791 B	71.90	1834.39	0.93	672.66	.0343
12	6-791 C	81.21	2071.94	1.43	352.01	.0179
13	6-791 D	70.98	1810.88	3.09	210.22	.0107
14	6-791 E	27.63	704.82	3.55	469.01	.0239
15	6-791 F	9.66	246.42	3.25	141.44	.0072
16	6-792 A	32.12	819.35	3.00	771.47	.0393

TABLE 4

ANALYSIS OF MOTOROLA SAMPLES

Mr I Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm^2	Grain boundaries length/cm^2	No. of Dislocation Pits/field	No. of Dislocation Pits/μm^2
17	6-792 B	39.90	1017.91	3.705	408.21	.0208
18	6-792 V	25.88	660.28	3.33	429.62	.0219
19	6-792 D	33.85	863.63	4.08	225.91	.0115
20	6-792 E	37.74	962.73	3.50	108.75	.0055
21	6-792 F	21.87	557.97	5.48	103.36	.0052
22	6-840 A	31.46	802.77	5.74	256.57	.0129
23	6-840 B	16.88	430.62	6.93	131.89	.0067
24	6-840 C	16.35	417.11	4.93	136.07	.0069

TABLE 5

ANALYSIS OF MOTOROLA SAMPLES

MR I Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm^2	Grain boundary length/cm^2	No. of Dislocation Pits/field	No. of Dislocation Pits/μm^2
25	6-840 D	49.86	1272.02	4.20	28.12	.0014
26	6-840 E	22.85	582.97	2.95	101.41	.0052
27	6-840 F	35.95	917.21	4.87	77.46	.0039
28	6-840 G	6.18	157.91	5.88	51.15	.0026
29	6-837 A	27.15	692.71	2.16	486.63	.0248
30	6-837 B	48.13	1227.71	2.87	320.55	.0163
31	6-837 C	33.91	865.15	5.52	404.38	.0206
32	6-837 D	28.26	721.02	4.63	182.76	.0093

TABLE 6

```
DS2     16-JUN-79  BASIC V01B-02

5 REM*****PROGRAM-DEFECTS IN SILICON-VERSION 2(5/5/79)*********
6 REM******ALL DATA IS OUTPUT FOR STORAGE ON FILE(DX1:)***********
7 REM
8 DIM Z(1000)
9 PRINT 'DEFECTS IN SILICON(VERSION 2--5/5/79)'
10 PRINT 'HEADING'\PRINT
11 INPUT H$
15 PRINT 'PRINT FILE NAME FOR STORAGE OF DATA(DX1:NAME)'
16 PRINT
17 INPUT A$
18 OPEN A$ FOR OUTPUT AS FILE #1
22 PRINT 'OPERATOR'
23 PRINT
24 INPUT O$
30 PRINT 'MAGNIFICATION'
31 PRINT
32 INPUT M$
40 PRINT 'UNITS'
41 PRINT
42 INPUT U$
50 PRINT 'CALIBRATION FACTOR(UNITS/PP)'
51 PRINT
52 INPUT C
60 PRINT 'FRAME AREA(PP)'
61 PRINT
62 INPUT R
70 PRINT 'QTM OUTPUT DATA DIVIDED BY'
71 PRINT
72 INPUT X
80 PRINT 'AVERAGE FEATURE AREA(PP)'
81 PRINT
82 INPUT E
85 PRINT #1:'DEFECTS IN SILICON(VERSION 2-5/5/79)'\PRINT #1:
86 PRINT #1:H$\PRINT #1:
87 PRINT #1:'OPERATOR IS ';O$;'  MAGNIFICATION=';M$
88 PRINT #1:'UNITS= ';U$;'  CALIBRATION FACTOR (UNITS/PP)=';C
89 PRINT #1:'FRAME AREA=';R;' QTM OUTPUT WAS DIVIDED BY';X;'AND CORRECTED'
90 PRINT #1:'AVERAGE FEATURE AREA (PP)=';E    '
91 PRINT #1:
95 PRINT #1:'FLD    NO.      NO./AREA        MFPV           MFPH         L/A'
96 PRINT #1:'(A,P,VP,HP)'
100 PRINT 'FLD    NO.      NO./AREA        MFPV           MFPH         L/A'
101 PRINT '(A,P,VP,HP)'
102 INPUT B$
103 IF B$='D' THEN 600
104 IF B$='A' THEN 700
105 IF B$='END' THEN 999
```

TABLE 6 (contd.)

```
106 REM
107 REM  QTM MEASUREMENT ROUTINE
108 REM
109 CALL 'CIFI'
110 CALL 'STRT'(Z,4,'FIFI/CIF/FC1/FC2')
112 CALL 'CIFW'('AC0,')
114 CALL 'CIFW'('AE4,')
120 CALL 'STEP'(1,'FIFI=FLD/FC1=A/FC2=A')
130 CALL 'STEP'(2,'FC2=P')
140 CALL 'STEP'(3,'FC2=VP')
150 CALL 'STEP'(4,'FC2=HP')
160 CALL 'SEQ'(1,2,3,4)
170 CALL 'FLD'(A,P,V,H)
180 CALL 'CIFW'('AU,')
190 F=F+1
200 A=X*A\P=P*X\V=V*X\H=H*X
209 REM
210 REM CALCULATION ROUTINE
211 REM
220 N=A/E
230 G=N/R/C/C
235 IF V=0 THEN 250
236 M1=R*C/V
240 IF H=0 THEN 255
242 M2=R*C/H
243 GO TO 260
250 LET M1=0\GO TO 240
255 LET M2=0\GO TO 260
260 L=P/2/R/C
270 N1=N+N1\G1=G+G1\L1=L+L1
275 N2=N*N+N2\G2=G*G+G2\L2=L*L+L2
280 H1=H1+H\V1=V1+V
499 REM
500 REM  PRINT OUT RESULTS
501 REM
530 PRINT F;N;G,M1,M2,L
531 PRINT '(';A;P;V;H;')'
540 PRINT #1;F;N;G,M1,M2,L
541 PRINT #1;'(';A;P;V;H;')'
550 GO TO 102
599 REM
600 REM DELETE LAST FIELD
601 REM
610 N1=N1-N\N2=N2-N*N
615 G1=G1-G\G2=G2-G*G
620 L1=L1-L\L2=L2-L*L
625 F=F-1\H1=H1-H\V1=V1-V
```

TABLE 6 (contd.)

```
630 PRINT "LAST FIELD DELETED"
631 PRINT #1;"LAST FIELD DELETED"
635 GO TO 102
699 REM
700 REM ******AVERAGE,SD,SE*********
701 REM
710 LET Z1=N1/F
720 LET Z2=G1/F
730 IF V1=0 THEN 750
735 LET Z3=F*R*C/V1
740 IF H1=0 THEN 755
745 Z4=F*R*C/H1
746 GO TO 760
750 LET Z3=0\GO TO 740
755 LET Z4=0
760 LET Z5=L1/F
770 LET D=N2/F-Z1*Z1
780 LET S1=SQR(D)
781 LET E1=S1/(SQR(F))
790 LET D=G2/F-Z2*Z2\IF D<0 THEN 801
800 LET S2=SQR(D)\E2=S2/(SQR(F))\GO TO 810
801 LET S2=0\E2=0
810 LET D=L2/F-Z5*Z5
811 IF D<0 THEN 821
820 LET S5=SQR(D)\E5=S5/(SQR(F))\GO TO 850
821 LET S5=0\E5=0
850 PRINT '                    ***AVERAGE***'
851 PRINT '       NO.      NO./AREA        MFPV          MFPH          L/A'
852 PRINT #1;'              ********AVERAGE********'
853 PRINT #1;'       NO.      NO./AREA        MFPV          MFPH          L/A'
860 PRINT '  ';Z1,Z2,Z3,Z4,Z5
861 PRINT #1;'  ';Z1,Z2,Z3,Z4,Z5
870 PRINT 'SD';S1,S2,,,S5
871 PRINT #1;'SD';S1,S2,,,S5
880 PRINT 'SE';E1,E2,,,E5
881 PRINT #1;'SE';E1,E2,,,E5
900 GO TO 102
999 END

READY
```

TABLE 7

QTM DATA PRINTOUTS

For Motorola samples, MRI # I-32

DEFECTS IN SILICON(VERSION 2-5/5/79)

MR1MOT6-656SPEC. A TWINS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3102

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	1883.95	48059.8	4.41084E-04	7.50751E-05	14084.3
(5.84400E+06	3.94360E+06	317400	1.86480E+06)		
LAST FIELD DELETED					
1	43.9072	1120.08	.0304348	6.39269E-03	166.786
(136200	46700	4600	21900)		
2	32.7531	835.537	.056	6.03448E-03	172.143
(101600	48200	2500	23200)		
3	20.9865	535.369	.0875	9.39597E-03	110.357
(65100	30900	1600	14900)		
4	14.7647	376.65	.107692	.014	74.6429
(45800	20900	1300	10000)		
5	9.99355	254.938	.14	.0172839	60.3571
(31000	16900	1000	8100)		
6	11.7021	298.524	.116667	.021875	48.9286
(36300	13700	1200	6400)		
7	17.666	450.664	.0466667	.0152174	71.4286
(54800	20000	3000	9200)		
8	11.1541	284.543	.0666667	.0212121	51.7857
(34600	14500	2100	6600)		
9	12.6692	323.195	.0538461	.0170732	63.9286
(39300	17900	2600	8200)		
10	8.67182	221.22	.0933333	.0297872	36.7857
(26900	10300	1500	4700)		
11	14.539	370.893	.056	.0179487	61.0714
(45100	17100	2500	7800)		
12	5.02901	128.291	.127273	.0388889	27.8571
(15600	7800	1100	3600)		
13	2.86912	73.1918	.28	.0933333	12.1429
(8900	3400	500	1500)		
14	59.5422	1518.93	.0388889	.0123894	91.0714
(184700	25500	3600	11300)		
15	3.15925	80.5932	.35	.0636364	16.4286
(9800	4600	400	2200)		
16	0	0	0	0	
(0	0	0	0)		
17	.644745	16.4476	0	.28	4.28571
(2000	1200	0	500)		
18	0	0	0	0	
(0	0	0	0)		
19	0	0	0	0	
(0	0	0	0)		
20	4.86783	124.179	.466667	.0875	13.2143
(15100	3700	300	1600)		
21	85.7834	2188.35	.0202899	6.26959E-04	195
(266100	54600	6900	223300)		
22	4.90006	125.002	.012844	3.46620E-04	16.0714
(15200	4500	10900	403900)		
23	24.4358	623.364	2.78662E-04	.0304348	41.7857
(75800	11700	502400	4600)		
24	28.7234	732.74	.056	.0222222	50.3571
(89100	14100	2500	6300)		
25	24.4681	624.186	.0333333	.0114754	96.4286

```
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   17.7292      452.276       6.28705E-03    4.41919E-03    59.3143
SD 19.9377      508.616                                     53.5839
SE 3.98755      101.723                                     10.7168
 26  26.5957  678.463          .0482759       .0172839       67.8571
( 82500  19000  2900  8100 )
 27  27.3372  697.378          .0325581       .0133333       87.5
( 84800  24500  4300  10500 )
 28  22.8885  583.889          .0666667       .028           41.4286
( 71000  11600  2100  5000 )
 29  38.4913  981.921          .0451613       .0150538       75
( 119400  21000  3100  9300 )
 30  16.7634  427.637          .0411765       .0194444       60.7143
( 52000  17000  3400  7200 )
 31  15.7963  402.966          .0736842       .0189189       57.5
( 49000  16100  1900  7400 )
 32  65.6028  1673.54          .0259259       6.08696E-03    176.786
( 203500  49500  5400  23000 )
 33  86.7827  2213.85          .0304348       6.42202E-03    167.857
( 269200  47000  4600  21800 )
 34  17.3114  441.618          1.82839E-04    .0451613       24.2857
( 53700  6800  765700  3100 )
 35  0  0       4.66667E-04    0              0
( 0  0  300000  0 )
 36  0  0       0              0              0
( 0  0  0  0 )
 37  0  0       0              0              0
( 0  0  0  0 )
 38  0  0       0              0              0
( 0  0  0  0 )
 39  0  0       0              0              0
( 0  0  0  0 )
 40  0  0       0              0              0
( 0  0  0  0 )
 41  0  0       0              0              0
( 0  0  0  0 )
 42  .322373  8.22379          1.4            .7             2.14286
( 1000  600  100  200 )
 43  .483559  12.3357          1.4            .28            4.28571
( 1500  1200  100  500 )
 44  0  0       0              0              0
( 0  0  0  0 )
 45  56.254  1435.05           0              .0264151       126.071
( 174500  35300  0  5300 )
LAST FIELD DELETED
 45  67.5048  1722.06          .07            .0212121       53.9286
( 209400  15100  2000  6600 )
 46  127.369  3249.22          .05            .0205882       58.2143
( 395100  16300  2800  6800 )
 47  31.6248  806.754          1.25448E-03    .0538461       24.2857
( 98100  6800  111600  2600 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   21.0235      536.314       3.72446E-03    7.27795E-03    50.7371
SD 27.2608      695.43                                      53.0494
SE 3.9764       101.439                                     7.73805
*
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MAI1MOT6-856 SPEC A DISLOCATION PITS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.77

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	115.771	5.90670E-03	140.845	166.667	9.60000E-03
(668	1344	497	420)		
2	222.877	.0113713	351.759	295.359	5.65714E-03
(1286	792	199	237)		
3	194.627	9.92997E-03	137.525	155.902	.01505
(1123	2107	509	449)		
4	93.5875	4.77487E-03	416.667	416.667	4.46429E-03
(540	625	168	168)		
5	18.7175	9.54975E-04	729.167	1372.55	1.37857E-03
(108	193	96	51)		
6	86.8284	4.43002E-03	406.977	325.581	3.38571E-03
(501	474	172	215)		
7	164.125	8.37372E-03	95.2381	149.254	9.57957E-03
(947	1341	735	469)		
8	44.0208	2.24596E-03	2916.67	1029.41	2.92143E-03
(254	353	24	68)		
9	10.5719	5.39384E-04	3043.48	3888.89	5.42857E-04
(61	76	23	18)		
10	7.10572	3.62537E-04	3181.82	4666.67	6.64286E-04
(41	93	22	15)		
11	33.6222	1.71542E-03	654.206	654.206	3.15000E-03
(194	441	107	107)		
12	1502.25	.0766456	62.5	388.889	.0571571
(8668	8002	1120	180)		
LAST FIELD DELETED					
13	6.7591	3.44852E-04	1250	5833.33	6.71429E-04
(39	94	56	12)		
14	42.8076	2.18406E-03	729.167	921.053	1.58571E-03
(247	222	96	76)		
15	60.312	3.07714E-03	538.461	573.77	2.57143E-03
(348	374	130	122)		
16	43.5009	2.21943E-03	654.206	777.778	2.29286E-03
(251	321	107	90)		
17	47.6603	2.43165E-03	1129.03	1060.61	1.74286E-03
(275	244	62	66)		
18	26.5165	1.35288E-03	1320.75	1346.15	1.20000E-03
(153	168	53	52)		
19	34.4887	1.75963E-03	909.091	886.076	1.95000E-03
(199	273	77	79)		
20	138.302	7.05620E-03	166.667	189.189	8.74286E-03
(798	1224	420	370)		
21	83.0156	4.23549E-03	250	339.806	4.92143E-03
(479	689	280	206)		
22	3.29289	1.68005E-04	7000	7777.78	2.07143E-04
(19	29	10	9)		
23	55.8059	2.84724E-03	482.759	469.799	3.75000E-03
(322	525	145	149)		
24	146.101	7.45411E-03	198.864	200	7.72857E-03
(843	1082	352	350)		
25	43.3276	2.21059E-03	760.87	666.667	2.27143E-03
(250	318	92	105)		
26	139.515	7.11810E-03	181.818	212.766	9.01429E-03
(805	1262	385	329)		

```
                ********AVERAGE********
       NO.        NO./AREA          MFPV              MFPH              L/A
   74.5303        3.80257E-03     363.297           413.516           4.18971E-03
SD 60.7639        3.10020E-03                                         3.67930E-03
SE 12.1528        6.20040E-04                                         7.35861E-04
 26  788.908   .0402504          41.1765           38.3982           .0406571
( 4552  5692  1700  1823 )
 27  71.2305   3.63421E-03       714.286           786.517           2.32143E-03
( 411  325  98  89 )
 28  113.692   5.80059E-03       395.48            311.111           4.95714E-03
( 656  694  177  225 )
 29  138.821   7.08273E-03       299.145           308.37            4.86429E-03
( 801  681  234  227 )
 30  605.373   .0308864          56.5885           59.3723           .0266643
( 3493  3733  1237  1179 )
 31  28.5962   1.45899E-03       795.454           833.333           1.68571E-03
( 165  236  88  84 )
 32  8.31889   4.24433E-04       2592.59           4117.65           4.28571E-04
( 48  60  27  17 )
 33  4978.16   .253988           8.69673           9.81492           .1664
( 28724  23296  8049  7132 )
 34  3439.34   .175477           11.8926           11.9966           .132693
( 19845  18577  5886  5835 )
 35  3091.51   .15773            12.6285           13.587            .119243
( 17838  16694  5543  5152 )
 36  1674.52   .0854349          22.2081           24.6219           .0678
( 9662  9492  3152  2843 )
 37  737.608   .0376331          42.8397           45.3662           .0364
( 4256  5096  1634  1543 )
 38  375.39   .0191526           84.2358           94.7226           .0177929
( 2166  2491  831  739 )
 39  357.019   .0182153          80.3674           89.2857           .0187071
( 2060  2619  871  784 )
 40  65.5113   3.34241E-03       514.706           510.949           3.07143E-03
( 378  430  136  137 )
 41  176.603   9.01036E-03       167.866           204.082           9.09286E-03
( 1019  1273  417  343 )
 42  29.2894   1.49436E-03       1111.11           1250              1.48571E-03
( 169  208  63  56 )
 43  26.3432   1.34404E-03       1272.73           1060.61           1.37143E-03
( 152  192  55  66 )
 44  81.9757   4.18244E-03       469.799           479.452           3.47857E-03
( 473  487  149  146 )
 45  51.2998   2.61734E-03       786.517           679.612           2.58571E-03
( 296  362  89  103 )
 46  0  0      0                 0                 0
( 0  0  0  0 )
                ********AVERAGE********
       NO.        NO./AREA          MFPV              MFPH              L/A
   406.582        .020744           91.3397           98.3056           .0166618
SD 972.284        .0496063                                            .0350918
SE 143.355        7.31405E-03                                         5.17401E-03
*6
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI2 JPL MOT6-656 SPEC B TWINS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2588

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	621.02	15842.4	2.67329E-04	.0264151	334.286
(1.60720E+06	93600	523700	5300)		
LAST FIELD DELETED					
1	0	0	0	0	
(0	0	0	0)		
2	0	0	0	0	
(0	0	0	0)		
3	0	0	0	0	
(0	0	0	0)		
4	1.77743	45.3427	.466667	.116667	9.64286
(4600	2700	300	1200)		
5	0	0	0	0	
(0	0	0	0)		
6	489.683	12491.9	1.26927E-03	1.38751E-03	250.357
(1.26730E+06	70100	110300	100900)		
7	1.73879	44.357	.466667	.14	8.21429
(4500	2300	300	1000)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	1.4	.466667	0
(0	0	100	300)		
10	245.402	6260.25	.0424242	1.73568E-04	50.7143
(635100	14200	3300	806600)		
LAST FIELD DELETED					
10	87.3648	2228.69	1.62225E-03	2.63604E-04	90.3571
(226100	25300	86300	531100)		
11	78.4776	2001.98	3.17460E-03	.0116667	81.7857
(203100	22900	44100	12000)		
12	98.4158	2510.61	.0197183	.0110236	343.214
(254700	96100	7100	12700)		
13	40.1468	1024.15	.0285714	1.18044E-03	74.6429
(103900	20900	4900	118600)		
14	125.966	3213.42	.014433	7.17949E-03	171.071
(326000	47900	9700	19500)		
15	0	0	0	0	
(0	0	0	0)		
16	16.6924	425.827	.0424242	.0164706	228.214
(43200	63900	3300	8500)		
17	445.595	11367.2	1.00215E-03	6.63507E-03	660.714
(1.15320E+06	185000	139700	21100)		
LAST FIELD DELETED					
17	160.124	4084.79	4.75059E-04	2.68662E-04	250
(414400	70000	294700	521100)		
18	57.187	1458.85	1.16202E-04	1.11323E-04	96.7857
(148000	27100	1.20480E+06	1.25760E+06)		
19	1248.96	31861.1	1.70027E-04	5.12820E-03	395.357
(3.23230E+06	110700	823400	27300)		
LAST FIELD DELETED					
19	8.57805	218.828	.0823529	.0285714	38.2143
(22200	10700	1700	4900)		

```
 20  2.39567  61.1141          .2              .175            8.57143
( 6200  2400  700  800 )
 21  0  0       0               0               0
( 0  0  0  0 )
 22  326.159  8320.39          .0269231        2.74779E-04     84.6429
( 844100  23700  5200  509500 )
LAST FIELD DELETED
 22  7.53478  192.214          1.37120E-03     .0583333        28.9286
( 19500  8100  102100  2400 )
 23  8.53941  217.842          .1              .0583333        21.0714
( 22100  5900  1400  2400 )
 24  1.85471  47.3141          .175            .127273         9.28572
( 4800  2600  800  1100 )
 25  156.028  3980.3           1.18866E-04     9.00379E-05     383.571
( 403800  107400  1.17780E+06  1.55490E+06 )
 26  91.6152  2337.12          3.16027E-03     5.26316E-03     225
( 237100  63000  44300  26600 )
            ********AVERAGE********
       NO.      NO./AREA         MFPV            MFPH          L/A
   55.1584      1407.1          1.17620E-03     8.71314E-04     89.1896
SD 100.726      2569.53                                         115.709
SE 19.7539      503.927                                         22.6924
 27  137.403  3505.19          .0134615        6.86274E-03     182.143
( 355600  51000  10400  20400 )
 28  138.485  3532.79          .010687         4.96454E-03     240.357
( 358400  67300  13100  28200 )
 29  107.573  2744.22          .014433         6.48148E-03     628.571
( 278400  176000  9700  21600 )
 30  158.617  4046.35          .0172839        7.65027E-03     159.643
( 410500  44700  8100  18300 )
 31  131.762  3361.28          4.11765E-03     1.17253E-03     301.071
( 341000  84300  34000  119400 )
            ********AVERAGE********
       NO.      NO./AREA         MFPV            MFPH          L/A
   67.9987      1734.66         1.36909E-03     9.89625E-04     123.571
SD 97.004       2474.59                                         148.513
SE 17.4224      444.45                                          26.6737
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 2 JPL MOT6-656 SPEC B DISLOCATION PITS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6.32

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	521.677	.0266162	60.5013	63.0063	.0261429
(3297	3660	1157	1111)		
2	291.456	.0148702	93.4579	101.302	.0161857
(1842	2266	749	691)		
3	676.108	.0344953	25.7258	57.7082	.0364357
(4273	5101	2721	1213)		
4	164.082	8.37155E-03	176.322	188.172	8.75714E-03
(1037	1226	397	372)		
5	715.981	.0365297	40.3226	44.2478	.03755
(4525	5257	1736	1582)		
6	734.81	.0374903	39.9315	45.0161	.0376214
(4644	5267	1753	1555)		
7	199.051	.0101556	103.397	125.899	.0127643
(1258	1787	677	556)		
8	173.734	8.86399E-03	204.082	133.333	9.67857E-03
(1098	1355	343	525)		
9	76.5823	3.90726E-03	305.677	318.182	5.07143E-03
(484	710	229	220)		
10	101.424	5.17470E-03	166.667	167.464	.0100571
(641	1408	420	418)		
11	276.266	.0140952	88.9454	105.422	.0157429
(1746	2204	787	664)		
12	11.7089	5.97391E-04	1842.11	1750	7.07143E-04
(74	99	38	40)		
13	401.108	.0204647	59.5238	66.2252	.0225643
(2535	3159	1176	1057)		
14	118.038	6.02235E-03	175.439	222.93	8.17143E-03
(746	1144	399	314)		
15	333.861	.0170337	61.0288	84.0336	.0213286
(2110	2986	1147	833)		
16	279.43	.0142567	86.2069	93.0851	.0176714
(1766	2474	812	752)		
17	0	0	0	0	
(0	0	0	0)		
18	23.1013	1.17864E-03	760.87	843.373	1.75000E-03
(146	245	92	83)		
19	4.43038	2.26040E-04	7777.78	5000	2.28571E-04
(28	32	9	14)		
20	34.4937	1.75988E-03	673.077	603.448	2.47857E-03
(218	347	104	116)		
21	40.8228	2.08280E-03	1129.03	921.053	1.52143E-03
(258	213	62	76)		
22	283.386	.0144585	104.634	112.721	.0142571
(1791	1996	669	621)		
23	240.19	.0122546	153.173	133.843	.0105357
(1518	1475	457	523)		
24	135.443	6.91036E-03	163.17	150.215	9.60000E-03
(856	1344	429	466)		
25	123.734	6.31297E-03	194.444	184.211	7.75000E-03
(782	1085	360	380)		

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          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   238.437      .0121651      104.646       123.396       .0133829
SD 216.726      .0110575                                  .0112259
SE 43.3452      2.21149E-03                               2.24517E-03
 26  100.633  5.13433E-03     238.095       215.385       6.46429E-03
( 636  905  294  325 )
 27  0  0       0             0             0
( 0  0  0  0 )
 28  70.4114  3.59242E-03     327.103       204.082       5.62857E-03
( 445  788  214  343 )
 29  28.3228  1.44504E-03     897.436       760.87        1.90000E-03
( 179  266  78  92 )
 30  0  0       0             0             0
( 0  0  0  0 )
 31  14.557  7.42702E-04      813.953       813.953       2.08571E-03
( 92  292  86  86 )
 32  2.05696  1.04947E-04     0             0             0
( 13  0  0  0 )
 33  296.677  .0151366        99.1501       85.5746       .0163
( 1875  2282  706  818 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   196.169      .0100086      127.617       145.778       .0111197
SD 208.149      .0106199                                  .0108639
SE 36.2342      1.84868E-03                               1.89115E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 3 MOT 6-656 SPEC C TWINS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2437

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	93.5987	2387.72	.0304348	.0134615	84.6429
(228100	23700	4600	10400)		
LAST FIELD DELETED					
1	18.014	459.54	.0341463	.014433	149.286
(43900	41800	4100	9700)		
2	48.7485	1243.58	.0191781	8.28402E-03	137.5
(118800	38500	7300	16900)		
3	42.6754	1088.66	.0215385	8.75000E-03	123.929
(104000	34700	6500	16000)		
4	37.0538	945.249	.0254545	.0114754	100
(90300	28000	5500	12200)		
5	50.3078	1283.36	.0777778	.0325581	37.1429
(122600	10400	1800	4300)		
LAST FIELD DELETED					
5	4.88305	124.568	.466667	.0777778	13.5714
(11900	3800	300	1800)		
6	1.31309	33.4972	.7	.233333	4.64286
(3200	1300	200	600)		
7	0	0	0	0	
(0	0	0	0)		
8	1.55929	39.7779	.466667	.175	6.78572
(3800	1900	300	800)		
9	70.9479	1809.9	.0264151	.0110236	103.214
(172900	28900	5300	12700)		
10	0	0	0	0	
(0	0	0	0)		
11	0	0	0	0	
(0	0	0	0)		
12	5.5396	141.316	.28	.07	16.0714
(13500	4500	500	2000)		
13	1.02585	26.1697	1.4	.233333	5
(2500	1400	100	600)		
14	2.21584	56.5265	.7	.107692	10
(5400	2800	200	1300)		
15	2.58515	65.9476	.35	.0875	12.8571
(6300	3600	400	1600)		
16	31.1038	793.465	.0777778	.0119658	88.9286
(75800	24900	1800	11700)		
17	39.1465	998.635	.0636364	8.18713E-03	127.5
(95400	35700	2200	17100)		
18	49.6512	1266.61	1.03321E-03	6.82927E-03	153.929
(121000	43100	135500	20500)		
19	51.9902	1326.28	.0358974	6.79612E-03	156.071
(126700	43700	3900	20600)		
20	34.8789	889.769	.07	.012963	82.1429
(85000	23000	2000	10800)		
21	10.5047	267.978	.155556	.0291667	36.7857
(25600	10300	900	4800)		
22	2.21584	56.5265	.7	.2	5.71429
(5400	1600	200	700)		

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                ********AVERAGE********
        NO.       NO./AREA         MFPV             MFPH          L/A
   20.7297        528.818         .0173815         .0189655      60.6331
SD 21.8945        558.533                                        59.3427
SE 4.66792        119.08                                         12.6519
 23  61.387  1565.99              .0583333         9.72222E-03   109.286
( 149600  30600  2400  14400 )
 24  26.3028  670.991             .0933333         .014          75.7143
( 64100  21200  1500  10000 )
 25  40.6237  1036.32             .07              .0181818      60.3571
( 99000  16900  2000  7700 )
 26  0  0       0                 0                0
( 0  0  0  0 )
 27  0  0       0                 0                0
( 0  0  0  0 )
 28  0  0       0                 0                0
( 0  0  0  0 )
 29  128.108  3268.07             .0482759         .0125         89.2857
( 312200  25000  2900  11200 )
 30  0  0       0                 0                0
( 0  0  0  0 )
 31  0  0       0                 0                0
( 0  0  0  0 )
 32  0  0       0                 0                0
( 0  0  0  0 )
 33  0  0       0                 0                0
( 0  0  0  0 )
                ********AVERAGE********
        NO.       NO./AREA         MFPV             MFPH          L/A
   21.5901        550.769         .0248387         .0224599      50.5628
SD 28.6778        731.577                                        55.9431
SE 4.99217        127.351                                        9.73845
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 3 MOT 6-656 SPEC C DISLOCATION PITS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.96

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	561.745	.0286605	62.6679	65.3595	.02585
(3348	3619	1117	1071)		
2	77.1812	3.93782E-03	551.181	642.202	3.29286E-03
(460	461	127	109)		
3	23.4899	1.19847E-03	1320.75	1000	1.83571E-03
(140	257	53	70)		
4	93.4564	4.76818E-03	448.718	451.613	4.00000E-03
(557	560	156	155)		
5	1207.05	.0615841	28.3401	29.4365	.0588857
(7194	8244	2470	2378)		
6	345.973	.0176517	84.0336	86.6337	.0201
(2062	2814	833	808)		
7	127.852	6.52308E-03	278.884	272.374	6.74286E-03
(762	944	251	257)		
8	69.4631	3.54404E-03	654.206	752.688	2.24286E-03
(414	314	107	93)		
9	431.879	.0220347	81.8713	83.732	.0201357
(2574	2819	855	836)		
10	138.591	7.07095E-03	198.3	227.273	8.25714E-03
(826	1156	353	308)		
11	53.1879	2.71367E-03	598.291	833.333	2.50000E-03
(317	350	117	84)		
12	25.1678	1.28407E-03	2187.5	1272.73	9.64286E-04
(150	135	32	55)		
13	125.839	6.42036E-03	207.715	231.023	7.42143E-03
(750	1039	337	303)		
14	51.6779	2.63663E-03	424.242	538.461	3.40714E-03
(308	477	1o5	130)		
15	21.9799	1.12142E-03	2187.5	1272.73	1.18571E-03
(131	166	32	55)		
16	67.4497	3.44131E-03	3500	2916.67	5.07143E-04
(402	71	20	24)		
LAST FIELD DELETED					
16	13.9262	7.10519E-04	2592.59	1944.44	6.92857E-04
(83	97	27	36)		
17	3.18792	1.62649E-04	7777.78	7777.78	2.07143E-04
(19	29	9	?)		
********AVERAGE********					
	NO.	NO./AREA	MFPV	MFPH	L/A
	198.332	.010119	169.01	176.114	9.86597E-03
SD	295.884	.0150962			.0143796
SE	71.7625	3.66135E-03			3.48757E-03
18	26.8456	1.36968E-03	1428.57	795.454	1.50714E-03
(160	211	49	88)		
19	15.2685	7.79003E-04	2258.06	1944.44	9.28572E-04
(91	130	31	36)		
20	846.98	.0432133	42.8397	43.6137	.0402143
(5048	5630	1634	1605)		
21	961.577	.0490601	27.1423	32.0954	.0549857
(5731	7698	2579	2181)		
22	1535.57	.0783455	20.3252	21.1672	.0775072
(9152	10851	3444	3307)		

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 23   41.443   2.11444E-03      1093.75         744.681         2.91429E-03
( 247   408   64   94 )
 24   25.8389   1.31831E-03     3181.82         1372.55         8.71429E-04
( 154   122   22   51 )
 25   237.416   .0121131        157.658         131.332         .0111429
( 1415   1580   444   533 )
 26   409.396   .0208876        97.493          90.2062         .0180929
( 2440   2533   718   776 )
 27   318.96   .0162735         109.375         113.086         .0152786
( 1901   2139   640   619 )
 28   345.134   .0176089        101.01          95.3678         .0161786
( 2057   2265   693   734 )
 29   785.738   .0400887        46.1133         39.1718         .0409214
( 4683   5729   1518   1787 )
 30   1000.5   .0510461         27.248          28.9256         .0551429
( 5963   7720   2569   2420 )
 31   81.3758   4.15183E-03     351.759         256.41          5.52143E-03
( 485   773   199   273 )
 32   105.705   5.39310E-03     437.5           372.34          4.07143E-03
( 630   570   160   188 )
 33   0   0        0              0               0
( 0   0   0   0 )
 34   450.503   .0229849        89.172          65.8514         .0223571
( 2685   3130   785   1063 )
              ********AVERAGE********
        NO.       NO./AREA         MFPV            MFPH .          L/A
    310.585       .0158462        105.356         105.721         .0157458
SD  389.742       .0198848                                        .020007
SE  66.8401       3.41021E-03                                     3.43117E-03
 35   0   0        0              0               0
( 0   0   0   0 )
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 4 MOT 6-656 SPEC D TWINS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2706

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	41.5373	1059.63	9.47867E-04	3.53535E-03	112.5
(112400	31500	147700	39600)		
2	223.688	5706.33	3.43221E-04	5.27506E-04	209.286
(605300	58600	407900	265400)		
LAST FIELD DELETED					
2	4.65632	118.784	2.79497E-04	.0388889	27.5
(12600	7700	500900	3600)		
3	33.6659	858.825	.0333333	8.18713E-03	132.143
(91100	37000	4200	17100)		
4	37.4723	955.926	.0304348	6.22222E-03	170.714
(101400	47800	4600	22500)		
5	3.95418	100.872	.35	.0666667	16.0714
(10700	4500	400	2100)		
6	19.3644	493.989	.155556	.027451	38.9286
(52400	10900	900	5100)		
7	113.341	2891.35	.0311111	6.36364E-03	167.5
(306700	46900	4500	22000)		
8	102.106	2604.76	.0583333	.0142857	77.8571
(276300	21800	2400	9800)		
9	141.574	3611.59	.035	8.48485E-03	130
(383100	36400	4000	16500)		
10	132.188	3372.14	.0318182	7.52688E-03	145
(357700	40600	4400	18600)		
11	102.476	2614.18	.0222222	5.40540E-03	199.643
(277300	55900	6300	25900)		
12	3.7694	96.1582	.14	.07	18.9286
(10200	5300	1000	2000)		
13	11.0126	280.933	.1	.0215385	50
(29800	14000	1400	6500)		
14	147.894	3772.8	.0311111	8.13953E-03	137.143
(400200	38400	4500	17200)		
15	143.237	3654.01	.0368421	9.52381E-03	117.143
(387600	32800	3800	14700)		
16	145.492	3711.52	.0325581	8.80503E-03	127.143
(393700	35600	4300	15900)		
17	152.033	3878.38	.0358974	9.03226E-03	124.643
(411400	34900	3900	15500)		
18	142.129	3625.73	.028	7.48663E-03	148.214
(384600	41500	5000	18700)		
	********AVERAGE********				
	NO.	NO./AREA	MFPV	MFPH	L/A
	82.1056	2094.53	3.57853E-03	9.22064E-03	107.837
SD	58.5132	1492.68			54.482
SE	13.7917	351.829			12.8415
19	155.728	3972.65	.0358974	9.52381E-03	120
(421400	33600	3900	14700)		
20	144.826	3694.55	.035	7.65027E-03	142.5
(391900	39900	4000	18300)		
21	149.778	3820.88	.0318182	8.18713E-03	136.429
(405300	38200	4400	17100)		

```
 22  77.9749  1989.16          .0411765       9.79021E-03    111.071
( 211000  31100  3400  14300 )
 23  99.6674  2542.54          .0197183       7.36842E-03    156.071
( 269700  43700  7100  19000 )
 24  76.7184  1957.1           .0222222       8.23529E-03    140
( 207600  39200  6300  17000 )
 25  88.2853  2252.18          .0208955       6.54206E-03    171.071
( 238900  47900  6700  21400 )
 26  53.5107  1365.07         6.77966E-04     1.52240E-04    157.143
( 144800  44000  206500  919600 )
 27  53.5107  1365.07          .0222222       6.57277E-03    160.714
( 144800  45000  6300  21300 )
 28  42.3873  1081.31          .0311111       7.72286E-05    111.429
( 114700  31200  4500  1.81280E+06 )
 29  1.73683  44.3082          .466667        .116667        9.28572
( 4700  2600  300  1200 )
 30  4.54545  115.955          .2             .0583333       20
( 12300  5600  700  2400 )
 31  13.932  355.408           .0411765       .0177215       65.3571
( 37700  18300  3400  7900 )
 32  6.57797  167.806          .116667        .0451613       25.3571
( 17800  7100  1200  3100 )
 33  77.2727  1971.24          .0285714       .0112          105.357
( 209100  29500  4900  12500 )
 34  17.5166  446.853          .05            .0254545       48.5714
( 47400  13600  2800  5500 )
 35  13.5994  346.924          .056           .0311111       38.9286
( 36800  10900  2500  4500 )
              ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   73.0134      1862.59       5.03545E-03    1.53803E-03     104.582
SD 55.5465      1417                                         54.0205
SE 9.38907      239.517                                      9.13113
*
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 4 MOT 6-656 SPEC D DISLOCATION PITS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.35

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	2004.49	.10227	19.8469	20.432	.0864929
(10724	12109	3527	3426)		
2	2968.6	.151459	15.224	13.1037	.114771
(15882	16068	4598	5342)		
3	1413.64	.0721248	26.1878	23.0719	.0683
(7563	9562	2673	3034)		
4	294.393	.01502	161.29	93.9597	.0119571
(1575	1674	434	745)		
5	29.1589	1.48770E-03	1228.07	1044.78	1.51429E-03
(156	212	57	67)		
6	12.3364	6.29411E-04	3181.82	2800	7.07143E-04
(66	99	22	25)		
7	30.8411	1.57353E-03	795.454	760.87	2.04286E-03
(165	286	88	92)		
8	6.16822	3.14705E-04	5000	5833.33	2.78571E-04
(33	39	14	12)		
9	14.0187	7.15240E-04	3181.82	3888.89	4.78571E-04
(75	67	22	18)		
10	0	0	0	0	
(0	0	0	0)		
11	165.794	8.45890E-03	308.37	261.194	6.51429E-03
(887	912	227	268)		
12	10.6542	5.43582E-04	2258.06	3333.33	5.71429E-04
(57	80	31	21)		
13	653.271	.0333302	57.8991	53.5578	.0297929
(3495	4171	1209	1307)		
14	165.421	8.43983E-03	233.333	218.75	7.20000E-03
(885	1008	300	320)		
15	0	0	0	0	
(0	0	0	0)		
16	0	0	0	0	
(0	0	0	0)		
17	0	0	0	0	
(0	0	0	0)		
********AVERAGE********					
	NO.	NO./AREA	MFPV	MFPH	L/A
	456.987	.0233157	90.1378	81.0792	.0194483
SD	834.875	.0425957			.0343176
SE	202.487	.010331			8.32323E-03
18	0	0	0	0	
(0	0	0	0)		
19	0	0	0	0	
(0	0	0	0)		
20	0	0	0	0	
(0	0	0	0)		
21	0	0	0	0	
(0	0	0	0)		
22	29.3458	1.49723E-03	1489.36	608.696	1.25714E-03
(157	176	47	115)		

```
 23   165.981   8.46844E-03     573.77          292.887         4.48571E-03
( 888   628   122   239 )
 24   0   0        0             0               5.71429E-05
( 0   8   0   0 )
 25   0   0        0             0               0
( 0   0   0   0 )
 26   291.215   .0148579        222.222         130.597         .0103143
( 1558   1444   315   536 )
 27   0   0        0             0               0
( 0   0   0   0 )
 28   102.43   5.22602E-03      318.182         351.759         5.08572E-03
( 548   712   220   199 )
 29   164.486   8.39214E-03     181.347         187.668         7.60000E-03
( 880   1064   386   373 )
 30   299.626   .0152871        91.5033         124.334         .0143143
( 1603   2004   765   563 )
 31   130.467   6.65650E-03     290.456         315.315         5.50000E-03
( 698   770   241   222 )
 32   128.037   6.53252E-03     261.194         280             5.80000E-03
( 685   812   268   250 )
 33   540.935   .0275987        67.5024         65.9134         .0258643
( 2894   3621   1037   1062 )
 34   108.598   5.54072E-03     316.742         206.49          6.13572E-03
( 581   859   221   339 )
 35   661.495   .0337498        56.4972         52.5525         .0303857
( 3539   4254   1239   1332 )
 36   437.57   .022325          85.5746         70              .0189071
( 2341   2647   818   1000 )
*
```

.0037

ave - 300.47 .0151

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DEFECTS IN SILICON(VERSION 2--5/5/79)                    100 FIELDS
HEADING

?MRI 5 MOT 6-656 SPEC E TWINS ONLY
PRINT FILE NAME FOR STORAGE OF DATA(DX1:NAME)

?STORE 2
OPERATOR

?TIM,HAYAT
MAGNIFICATION

?800
UNITS

?MM
CALIBRATION FACTOR(UNITS/PP)

?.00028
FRAME AREA(PP)

?500000
QTM OUTPUT DATA DIVIDED BY

?100
AVERAGE FEATURE AREA(PP)

?1336
FLD.   NO.      NO./AREA        MFPV           MFPH          L/A
(A,P,VP,HP)
?
 1   0   0         0              0              0
( 0   0   0   0 )
?
 2   0   0         0              0              0
( 0   0   0   0 )
?
 3   0   0         0              0              0
( 0   0   0   0 )
?
 4   116.467   2971.1           1.55452E-04    .127273        10
( 155600   2800   900600   1100 )
?D
LAST FIELD DELETED
?
 4   0   0         0              0              0
( 0   0   0   0 )
?
 5   0   0         0              0              0
( 0   0   0   0 )
?
 6   2.02096   51.5551          .466667        .233333        5.35714
( 2700   1500   300   600 )
?
 7   0   0         0              0              0
( 0   0   0   0 )
?
 8   155.913   3977.38          .2             .0933333       13.5714
( 208300   3800   700   1500 )
```

```
 8  13.3234  339.882          .0823529       .0269231       35.3571
( 17800  9900  1700  5200 )
?
 9  98.2036  2505.19          3.44488E-04    1.30951E-04    284.286
( 131200  79600  406400  1.06910E+06 )
?D
LAST FIELD DELETED
?
 9  383.757  9789.73          .0112          1.14192E-03    238.214
( 512700  66700  12500  122600 )
?D
LAST FIELD DELETED
?
 9  0  0        0              0              0
( 0  0  0  0 )
?
 10  391.692  9992.14          .28            1.25448E-03    146.786
( 523300  41100  500  111600 )
?D
LAST FIELD DELETED
?
 10  0  0       0              0              0
( 0  0  0  0 )
?
 11  864.072  22042.7          1.55435E-04    2.77338E-04    140
( 1.15440E+06  39200  900700  504800 )
?D
LAST FIELD DELETED
?
 11  528.593  13484.5          .14            2.14922E-04    484.643
( 706200  135700  1000  651400 )
?D
LAST FIELD DELETED
?
 11  2.02096  51.5551          .466667        .28            347.857
( 2700  97400  300  500 )
?
 12  1.57186  40.0984          1.4            .7             2.14286
( 2100  600  100  200 )
?
 13  67.2156  1714.68          6.97454E-05    .0166667       75
( 89800  21000  2.00730E+06  8400 )
?
 14  555.689  14175.7          .0388889       .0159091       71.7857
( 742400  20100  3600  8800 )
?D
LAST FIELD DELETED
?
 14  17.2156  439.173          .07            .027451        42.1429
( 23000  11800  2000  5100 )
?
 15  18.6377  475.452          .0636364       .0285714       41.4286
( 24900  11600  2200  4900 )
?
 16  3.81737  97.3818          .0137255       .35            3.57143
( 5100  1000  10200  400 )
?
 17  109.731  2799.25          .0297872       .0157303       74.6429
( 146600  20900  4700  8900 )
?
 18  112.5  2869.9             .021875        .0113821       107.5
( 150300  30100  6400  12300 )
```

```
 19  106.437  2715.23          .028          .0118644      96.0714
( 142200  26900  5000  11800 )
?
 20  114.371  2917.63          .0225806      .0119658      103.214
( 152800  28900  6200  11700 )
?
 21  700.075  17859.1          .025          .0179487      72.1429
( 935300  20200  5600  7800 )
?D
LAST FIELD DELETED
?
 21  113.548  2896.63          .0259259      .0141414      88.5714
( 151700  24800  5400  9900 )
?
 22  89.8952  2293.25          .0325581      .0148936      81.4286
( 120100  22800  4300  9400 )
?
 23  125.524  3202.14          .0254545      .0123894      97.1429
( 167700  27200  5500  11300 )
?
 24  113.772  2902.36          .028          .0141414      85
( 152000  23800  5000  9900 )
?
 25  92.7395  2365.8           .027451       .0130841      91.4286
( 123900  25600  5100  10700 )
?
 26  77.7695  1983.92          .0341463      .0166667      87.8571
( 103900  24600  4100  8400 )
?
 27  147.156  3753.97          .0388889      .0186667      64.2857
( 196600  18000  3600  7500 )
?
 28  29.3413  748.503          .0411765      .0175         66.4286
( 39200  18600  3400  8000 )
?
 29  106.138  2707.6           .0237288      .0137255      87.1429
( 141800  24400  5900  10200 )
?
 30  94.6856  2415.45          .0368421      .0245614      52.1429
( 126500  14600  3800  5700 )
?
 31  70.7335  1804.43          .028          .0119658      96.7857
( 94500  27100  5000  11700 )
?
 32  126.647  3230.78          .0333333      .0164706      75
( 169200  21000  4200  8500 )
?
 33  93.9371  2396.36          .0179487      8.75000E-03   135.714
( 125500  38000  7800  16000 )
?
 34  98.5778  2514.74          .0215385      .0119658      103.214
( 131700  28900  6500  11700 )
?
 35  91.1677  2325.71          .0205882      .01           624.286
( 121800  174800  6800  14000 )
?
 36  83.7575  2136.67          .0215385      .010219       116.071
( 111900  32500  6500  13700 )
?
 37  81.4371  2077.48          .0222222      .0103704      114.643
( 108800  32100  6300  13500 )
?
 38  99.4012  2535.75          .0233333      .0142857      88.2143
( 132800  24700  6000  9800 )
```

```
?
 39  148.353  3784.52          .0291667       .0205882       65.3571
( 198200  18300  4800  6800 )
?
 40  80.5389  2054.56          .0583333       .0177215       36.4286
( 107600  10200  2400  7900 )
?
 41  72.5299  1850.25          .0388889       .02            61.0714
( 96900  17100  3600  7000 )
?
 42  236.527  6033.85          .0304348       .0159091       75
( 316000  21000  4600  8800 )
?D
LAST FIELD DELETED
?
 42  97.006  2474.64           .027451        1.29991E-03    73.2143
( 129600  20500  5100  107700 )
?
 43  107.41  2740.06           .0291667       .012844        76.7857
( 143500  21500  4800  10900 )
?
 44  53.518  1365.25           .035           .0141414       81.4286
( 71500  22800  4000  9900 )
?
 45  91.1677  2325.71          .0538461       .0237288       50.3571
( 121800  14100  2600  5900 )
?
 46  127.47  3251.79           2.27902E-04    8.86076E-04    71.7857
( 170300  20100  614300  158000 )
?
 47  82.4102  2102.3           .05            .0179487       64.2857
( 110100  18000  2800  7800 )
?
 48  83.2335  2123.3           .0325581       .0138614       85.3571
( 111200  23900  4300  10100 )
?
 49  114.371  2917.63          .025           .012069        100.357
( 152800  28100  5600  11600 )
?
 50  53.0689  1353.8           .0291667       .0138614       84.2857
( 70900  23600  4800  10100 )
?A
                    ***AVERAGE***
       NO.       NO./AREA        MFPV           MFPH          L/A
   68.3234       1742.94        2.49937E-03    .0114081       78.8072
SD 47.1814       1203.61                                      95.4638
SE 6.67246       170.216                                      13.5006
?
 51  168.338  4294.35           .0777778       .0388889       32.8571
( 224900  9200  1800  3600 )
?
 52  164.746  4202.69           .0304348       .0164706       79.6429
( 220100  22300  4600  8500 )
?
 53  162.65  4149.23            .0368421       .0202899       61.7857
( 217300  17300  3800  6900 )
?
 54  166.542  4248.52           .0518518       .0259259       48.9286
( 222500  13700  2700  5400 )
?
 55  158.683  4048.03           .0264151       .014433        86.7857
( 212000  24300  5300  9700 )
```

```
 56  151.272  3858.99          .0291667       .014433        85.7143
( 202100  24000  4800  9700 )
?
 57  150.749  3845.63          .0241379       .012069        103.571
( 201400  29000  5800  11600 )
?
 58  159.207  4061.39          .0368421       .0162791       75.3571
( 212700  21100  3800  8600 )
?
 59  158.458  4042.3           .027451        .0147368       86.4286
( 211700  24200  5100  9500 )
?
 60  153.743  3922             .0318182       .0147368       82.8571
( 205400  23200  4400  9500 )
?
 61  144.311  3681.41          .0264151       .0122807       98.9286
( 192800  27700  5300  11400 )
?
 62  150.749  3845.63          .0368421       .0189189       66.4286
( 201400  18600  3800  7400 )
?
 63  149.925  3824.62          .035           .0138614       85.7143
( 200300  24000  4000  10100 )
?
 64  159.88  4078.58           .0333333       .0164706       77.8571
( 213600  21800  4200  8500 )
?
 65  154.79  3948.74           .027451        .0130841       93.2143
( 206800  26100  5100  10700 )
?
 66  154.341  3937.28          .0264151       .0118644       102.5
( 206200  28700  5300  11800 )
?
 67  142.665  3639.41          .0311111       .0141414       85.3571
( 190600  23900  4500  9900 )
?
 68  150.225  3832.26          .0311111       .0142857       84.2857
( 200700  23600  4500  9800 )
?
 69  149.701  3818.89          .0245614       .0127273       100
( 200000  28000  5700  11000 )
?
 70  135.105  3446.55          .0189189       9.52381E-03    131.429
( 180500  36800  7400  14700 )
?
 71  148.578  3790.25          .0285714       .012963        93.9286
( 198500  26300  4900  10800 )
?
 72  152.62  3893.36           .0233333       .0118644       105.357
( 203900  29500  6000  11800 )
?
 73  138.099  3522.93          .0208955       .010219        118.929
( 184500  33300  6700  13700 )
?
 74  145.135  3702.42          .0264151       .0135922       91.0714
( 193900  25500  5300  10300 )
?
 75  141.916  3620.31          .0264151       .012069        98.9286
( 189600  27700  5300  11600 )
?
 76  152.545  3891.45          .028           .012069        98.9286
( 203800  27700  5000  11600 )
```

```
 77  149.326  3809.35          .0311111        .0141414        86.7857
( 199500  24300  4500  9900 )
?
 78  151.572  3866.63     .    .0233333        .0105263        116.071
( 202500  32500  6000  13300 )
?
 79  99.2515  2531.93          .0424242        .0202899        61.7857
( 132600  17300  3300  6900 )
?
 80  0  0       0               0               0
( 0  0  0  0 )
?
 81  0  0       0               0               0
( 0  0  0  0 )
?
 82  0  0       0               0               0
( 0  0  0  0 )
?
 83  0  0       0               0               0
( 0  0  0  0 )
?
 84  227.695  5808.54          .28             1.39165E-03     77.1429
( 304200  21600  500  100600 )
?D
LAST FIELD DELETED
?
 84  0  0       0               0               0
( 0  0  0  0 )
?
 85  10.6287  271.141          .116667         .04375          25.3571
( 14200  7100  1200  3200 )
?
 86  7.11078  181.397          .14             .0636364        18.5714
( 9500  5200  1000  2200 )
?
 87  26.6467  679.763          .0482759        .0212121        53.9286
( 35600  15100  2900  6600 )
?
 88  16.6168  423.897          .0823529        .035            32.8571
( 22200  9200  1700  4000 )
?
 89  14.521  370.433           .0875           .0318182        35
( 19400  9800  1600  4400 )
?
 90  21.0329  536.555          .0736842        .0254545        43.5714
( 28100  12200  1900  5500 )
?
 91  625.449  15955.3          .056            .0225806        51.0714
( 835600  14300  2500  6200 )
?D
LAST FIELD DELETED
?
 91  0  0       0               0               0
( 0  0  0  0 )
?
 92  63.2485  1613.48          .466667         .14             7.85714
( 84500  2200  300  1000 )
?D
LAST FIELD DELETED
?
 92  2.09581  53.4645          .7              .233333         5
( 2800  1400  200  600 )
```

```
 93  2.76946   70.6495          .35              .14              8.92857
( 3700   2500   400   1000 )
?
 94  6.36228   162.303          .175             .0933333         12.8571
( 8500   3600   800   1500 )
?
 95  12.8743   328.425          .28              .1               47.5
( 17200   13300   500   1400 )
?
 96  4.86527   124.114          .233333          .14              8.92857
( 6500   2500   600   1000 )
?
 97  1.64671   42.0078          1.4              .28              3.92857
( 2200   1100   100   500 )
?
 98  0   0        0               0                0
( 0   0   0   0 )
?
 99  0   0        0               0                0
( 0   0   0   0 )
?
 100  12.2754   313.149          .0118644         2.78718E-04      486.071
( 16400   136100   11800   502300 )
?A
                        ***AVERAGE***
        NO.       NO./AREA         MFPV             MFPH             L/A
    79.2073       2020.6          4.72287E-03      9.74930E-03      72.6429
SD 61.7309        1574.77                                           84.8504
SE 6.17309        157.477                                           8.48504
?


 END

READY
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 5 MOT 6-656 SPEC E DISLOCATION PITS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.4

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	1287.22	.0656746	26.3554	31.1943	.0601572
(6951	8422	2656	2244)		
2	590.741	.0301398	46.5735	53.5988	.0330214
(3190	4623	1503	1306)		
3	747.222	.0381236	37.5134	43.7774	.0395429
(4035	5536	1866	1599)		
4	1849.26	.09435	19.0476	22.0472	.0837357
(9986	11723	3675	3175)		
5	3096.48	.157984	11.6628	12.8088	.131114
(16721	18356	6002	5465)		
6	134.815	6.87831E-03	311.111	278.884	5.50714E-03
(728	771	225	251)		
7	113.889	5.81066E-03	476.19	339.806	1.77857E-03
(615	249	147	206)		
8	54.0741	2.75888E-03	886.076	833.333	1.65714E-03
(292	232	79	84)		
9	66.6667	3.40136E-03	391.061	404.624	4.10714E-03
(360	575	179	173)		
10	171.667	8.75851E-03	191.781	205.279	8.05714E-03
(927	1128	365	341)		
11	78.5185	4.00605E-03	404.624	409.357	3.63571E-03
(424	509	173	171)		
12	54.4444	2.77778E-03	409.357	538.461	3.47857E-03
(294	487	171	130)		
13	21.2963	1.08655E-03	2592.59	2500	1.15714E-03
(115	162	27	28)		
14	8.7037	4.44067E-04	2800	3333.33	4.64286E-04
(47	65	25	21)		
15	10.1852	5.19652E-04	4375	3333.33	4.21429E-04
(55	59	16	21)		
16	7.03704	3.59033E-04	3684.21	4117.65	4.21429E-04
(38	59	19	17)		
17	3.33333	1.70068E-04	17500	11666.7	1.57143E-04
(18	22	4	6)		
18	41.1111	2.09751E-03	714.286	729.167	2.19286E-03
(222	307	98	96)		
19	4.62963	2.36206E-04	7777.78	11666.7	1.07143E-04
(25	15	9	6)		
20	0	0	0	0	0
(0	0	0	0)		
21	0	0	0	0	0
(0	0	0	0)		
22	0	0	0	0	0
(0	0	0	0)		
23	0	0	0	0	0
(0	0	0	0)		
24	0	0	0	0	0
(0	0	0	0)		
25	0	0	0	0	0
(0	0	0	0)		
26	0	0	0	0	0
(0	0	0	0)		

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          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   320.819      .0163683       105.575       118.644       .0146429
SD 706.445      .0360431                                   .0310402
SE 138.545      7.06864E-03                                6.08749E-03
 27   0   0       0              0             0
( 0   0   0   0 )
 28   0   0       0              0             0
( 0   0   0   0 )
 29   0   0       0              0             0
( 0   0   0   0 )
 30   0   0       0              0             0
( 0   0   0   0 )
 31   0   0       0              0             0
( 0   0   0   0 )
 32   0   0       0              0             0
( 0   0   0   0 )
 33   11.4815   5.85790E-04     3043.48       2058.82       4.64286E-04
( 62   65   23   34 )
 34   5   2.55102E-04          5833.33       5000          2.14286E-04
( 27   30   12   14 )
 35   9.44444   4.81860E-04     5384.61       6363.64       3.78571E-04
( 51   53   13   11 )
 36   9.25926   4.72411E-04     4117.65       4666.67       .0728071
( 50   10193   17   15 )
 37   593.889   .0303005        66.7939       80.8314       .0231429
( 3207   3240   1048   866 )
 38   270   .0137755           117.45        96.0219       .0142571
( 1458   1996   596   729 )
 39   0   0       0              0             0
( 0   0   0   0 )
 40   158.519   8.08768E-03     451.613       207.715       5.78571E-03
( 856   810   155   337 )
 41   49.0741   2.50378E-03     1029.41       578.512       2.10714E-03
( 265   295   68   121 )
 42   30.3704   1.54951E-03     507.246       443.038       2.70000E-03
( 164   378   138   158 )
 43   5.92593   3.02343E-04     3181.82       3333.33       2.85714E-04
( 32   40   22   21 )
 44   0   0       0              0             0
( 0   0   0   0 )
 45   169.074   8.62623E-03     208.333       214.724       7.75000E-03
( 913   1085   336   326 )
 46   0   0       0              0             0
( 0   0   0   0 )
 47   70.7407   3.60922E-03     344.828       402.299       2.84286E-03
( 382   398   203   174 )
 48   54.2593   2.76833E-03     1627.91       1250          1.04286E-03
( 293   146   43   56 )
 49   4.25926   2.17309E-04     10000         10000         2.07143E-04
( 23   29   7   7 )
 50   0   0       0              0             0
( 0   0   0   0 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   195.652      9.98224E-03     175.703       192.213       .010294
SD 533.455      .0272171                                   .0250926
SE 75.442       3.84908E-03                                3.54864E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 6 MOT 6-656 SPEC F TWINS ONLY

OPERATOR IS TIM,HAYAT 6-11-79 MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2483

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	6.40354	163.356	8.80503E-03	1.20794E-03	56.4286
(15900	15800	15900	115900)		
LAST FIELD DELETED					
1	6.323	161.301	.127273	.056	20.3571
(15700	5700	1100	2500)		
2	165.606	4224.65	.0101449	6.30631E-03	202.143
(411200	56600	13800	22200)		
3	58.6387	1495.89	.0141414	6.79612E-03	174.286
(145600	48800	9900	20600)		
4	18.1232	462.328	3.19927E-04	.02	60
(45000	16800	437600	7000)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	2.69835	68.8354	.175	.175	8.57143
(6700	2400	800	800)		
11	0	0	0	0	
(0	0	0	0)		
12	0	0	0	0	
(0	0	0	0)		
13	0	0	0	0	
(0	0	0	0)		
14	18.4454	470.547	.0482759	.02	57.5
(45800	16100	2900	7000)		
15	16.7942	428.424	.0736842	.0368421	32.1429
(41700	9000	1900	3800)		
16	3.94684	100.685	.127273	1.36852E-03	198.214
(9800	55500	1100	102300)		
17	22.8353	582.533	.0325581	1.51074E-04	83.5714
(56700	23400	4300	926700)		
18	16.2706	415.067	.0538461	.0205882	54.2857
(40400	15200	2600	6800)		
19	35.9646	917.463	.0285714	.0117647	96.7857
(89300	27100	4900	11900)		
20	25.0101	638.012	.0297872	.012963	88.5714
(62100	24800	4700	10800)		

********AVERAGE********

	NO.	NO./AREA	MFPV	MFPH	L/A
	19.5328	498.286	5.76606E-03	2.49465E-03	53.8214
SD	36.7097	936.471			66.3935
SE	8.20853	209.401			14.846
21	3.66492	93.4929	.14	1.36986E-03	18.2143
(9100	5100	1000	102200)		
22	0	0	0	0	
(0	0	0	0)		

```
 23  0  0       0              0              0
( 0  0  0  0 )
 24  1.89287  48.2875          .28            .116667        9.64286
( 4700  2700  500  1200 )
 25  0  0       0              0              0
( 0  0  0  0 )
 26  33.7898  861.984          .0237288       .0107692       107.5
( 83900  30100  5900  13000 )
 27  53.7253  1370.54          2.30112E-04    7.36842E-03    156.429
( 133400  43800  608400  19000 )
 28  40.4752  1032.53          .0311111       6.74699E-04    66.4286
( 100500  18600  4500  207500 )
 29  58.1957  1484.59          .0197183       .0111111       110.714
( 144500  31000  7100  12600 )
 30  125.171  3193.14          .0104478       6.08696E-03    208.214
( 310800  58300  13400  23000 )
 31  81.2727  2073.28          .0145833       7.17949E-03    344.643
( 201800  96500  9600  19500 )
 32  127.91  3263.01           .0115702       6.76328E-03    400
( 317600  112000  12100  20700 )
 33  467.016  11913.7          .012844        7.03518E-03    174.286
( 1.15960E+06  48800  10900  19900 )
LAST FIELD DELETED
 33  105.84  2699.99           .0116667       5.78512E-03    202.857
( 262800  56800  12000  24200 )
 34  304.712  7773.27          .0109375       9.79021E-03    124.286
( 756600  34800  12800  14300 )
LAST FIELD DELETED
 34  30.6484  781.847          4.58866E-04    .0141414       513.571
( 76100  143800  305100  9900 )
 35  72.3319  1845.2           .0157303       9.65517E-03    130.714
( 179600  36600  8900  14500 )
              ********AVERAGE********
        NO.      NO./AREA        MFPV           MFPH          L/A
    32.1593      820.389        3.32406E-03    3.08234E-03    95.5816
SD  42.5818      1086.27                                      122.31
SE  7.19764      183.613                                      20.6741
*
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 6 MOT 6-656 SPEC F DISLOCATION PITS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.81

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	128.744	6.56855E-03	162.791	176.768	9.36429E-03
(748	1311	430	396)		
2	16.6954	8.51804E-04	4375	2592.59	9.85714E-04
(97	138	16	27)		
3	6.88468	3.51259E-04	5384.61	5000	3.28571E-04
(40	46	13	14)		
4	17.2117	8.78148E-04	2187.5	2500	6.64286E-04
(100	93	32	28)		
5	50.4303	2.57297E-03	472.973	496.454	3.31429E-03
(293	464	148	141)		
6	18.4165	9.39619E-04	1489.36	1555.56	1.05714E-03
(107	148	47	45)		
7	119.449	6.09435E-03	202.899	216.718	7.37857E-03
(694	1033	345	323)		
8	16.6954	8.51804E-04	1891.89	1842.11	8.71429E-04
(97	122	37	38)		
9	26.8503	1.36991E-03	1228.07	1372.55	1.27857E-03
(156	179	57	51)		
10	66.4372	3.38965E-03	393.258	432.099	3.77857E-03
(386	529	178	162)		
11	8.60585	4.39074E-04	3888.89	3888.89	4.85714E-04
(50	68	18	18)		
12	87.0912	4.44343E-03	272.374	292.887	6.08572E-03
(506	852	257	239)		
13	152.496	7.78039E-03	154.867	166.667	.0103
(886	1442	452	420)		
14	157.315	8.02628E-03	165.094	167.064	.0103571
(914	1450	424	419)		
15	107.917	5.50599E-03	257.353	277.778	6.54286E-03
(627	916	272	252)		
16	237.522	.0121184	109.89	121.739	.0151071
(1380	2115	637	575)		
17	6.0241	3.07352E-04	3888.89	5000	4.35714E-04
(35	61	18	14)		
18	8.43373	4.30293E-04	3888.89	3888.89	4.07143E-04
(49	57	18	18)		
19	5.67986	2.89789E-04	5833.33	5000	3.50000E-04
(33	49	12	14)		
20	7.40103	3.77604E-04	4666.67	4117.65	4.14286E-04
(43	58	15	17)		
	********AVERAGE********				
	NO.	NO./AREA	MFPV	MFPH	L/A
	62.315	3.17934E-03	408.64	436.001	3.97536E-03
SD	65.5809	3.34597E-03			4.35130E-03
SE	14.6643	7.48181E-04			9.72979E-04
21	51.2909	2.61688E-03	573.77	378.378	3.92143E-03
(298	549	122	185)		
22	72237.4	3.68558	.133514	.133514	.4±9657
(419699	65780	524289	524289)		
LAST FIELD DELETED					
22	2197.76	.112131	15.497	17.5747	.0966
(12769	13524	4517	3983)		

```
 23   540.448   .0275739          61.8374          58.1395          .0283857
( 3140   3974   1132   1204 )
 24   283.821   .0144807          89.0585          97.7654          .0185286
( 1649   2594   786   716 )
 25   1053.36   .0537427          27.248           30.7287          .0556
( 6120   7784   2569   2278 )
 26   16.0069   8.16678E-04       2916.67          3043.48          5.64286E-04
( 93   79   24   23 )
 27   15.6627   7.99115E-04       1129.03          666.667          2.00000E-03
( 91   280   62   105 )
 28   122.203   6.23485E-03       222.222          233.333          7.02143E-03
( 710   983   315   300 )
 29   16.3511   8.34241E-04       2413.79          823.529          7.42857E-04
( 95   104   29   85 )
 30   0   0          0             0                0
( 0   0   0   0 )
 31   0   0          0             0                0
( 0   0   0   0 )
 32   0   0          0             0                0
( 0   0   0   0 )
 33   5.85198   2.98570E-04       5833.33          4117.65          3.14286E-04
( 34   44   12   17 )
 34   0   0          0             0                0
( 0   0   0   0 )
 35   332.358   .016957           120.898          142.566          .0133571
( 1931   1870   579   491 )
 36   17.7281   9.04493E-04       2187.5           2187.5           7.64286E-04
( 103   107   32   32 )
 37   23.0637   1.17672E-03       1014.49          1111.11          1.95714E-03
( 134   274   69   63 )
 38   0   0          0             0                0
( 0   0   0   0 )
              ********AVERAGE********
        NO.       NO./AREA          MFPV             MFPH             L/A
    155.848       7.95140E-03       194.53           209.564          8.13853E-03
SD  386.715       .0197302                                            .0177721
SE  62.7334       3.20067E-03                                         2.88302E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 7 MOT 6-656 SPEC G TWINS ONLY

OPERATOR IS TIM,HAYAT 6-11-79 MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2610

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	0	0	0	0	
(0	0	0	0)		
2	121.571	3101.3	6.97211E-04	1.16279E-03	12.1429
(317300	3400	200800	120400)		
LAST FIELD DELETED					
2	9.1954	234.577	1.26800E-04	.04	332.857
(24000	93200	1.10410E+06	3500)		
3	2.06897	52.7797	.175	6.97558E-04	186.429
(5400	52200	800	200700)		
4	1.80077	45.9379	.2	.233333	7.14286
(4700	2000	700	600)		
5	5.1341	130.972	4.63576E-04	.0777778	20.3571
(13400	5700	302000	1800)		
6	.498084	12.7062	1.4	1.4	1.42857
(1300	400	100	100)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	9.65517	246.305	.116667	.0875	16.0714
(25200	4500	1200	1600)		
10	175.019	4464.77	.0138614	.0126126	123.929
(456800	34700	10100	11100)		
11	178.736	4559.58	.0222222	.0191781	77.8571
(466500	21800	6300	7300)		
12	136.935	3493.24	.0108527	.0116667	194.643
(357400	54500	12900	12000)		
13	39.387	1004.77	.0358974	.021875	56.4286
(102800	15800	3900	6400)		
14	68.2759	1741.73	.0166667	8.43373E-03	142.857
(178200	40000	8400	16600)		
15	4.78927	122.175	.116667	.05	22.1429
(12500	6200	1200	2800)		
16	.804598	20.5255	.7	.233333	4.64286
(2100	1300	200	600)		
17	111.724	2850.11	5.44747E-03	.0152174	85.7143
(291600	24000	25700	9200)		
18	34.5977	882.595	.0304348	.0159091	76.7857
(90300	21500	4600	8800)		
19	59.2337	1511.06	.0285714	.014433	87.1429
(154600	24400	4900	9700)		
20	0	0	0	0	
(0	0	0	0)		
21	0	0	0	0	
(0	0	0	0)		
22	17.931	457.424	.14	1.25336E-03	15
(46800	4200	1000	111700)		
23	21.5326	549.3	.0538461	.04	32.5
(56200	9100	2600	3500)		
24	11.1877	285.402	.14	.107692	12.8571
(29200	3600	1000	1300)		
25	4.90421	125.108	.175	.116667	10.7143
(12800	3000	800	1200)		

```
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   35.7364      911.643        2.34506E-03    8.52619E-03    60.3
SD 54.3959      1387.65                                      80.2948
SE 10.8792      277.53                                       16.059
 26  12.8352  327.43          .0378378       1.15151E-04    50.7143
( 33500  14200  3700  1.21580E+06 )
 27  17.2797  440.809         .0538461       .0411765       32.8571
( 45100  9200  2600  3400 )
 28  0  0       0              0              0
( 0  0  0  0 )
 29  0  0       0              0              0
( 0  0  0  0 )
 30  2.18391  55.7119         .175           .175           8.57143
( 5700  2400  800  800 )
 31  40.1149  1023.34         .05            1.32953E-03    45.3571
( 104700  12700  2800  105300 )
 32  141.571  3611.5          1.98188E-04    1.53576E-04    221.071
( 369500  61900  706400  911600 )
 33  74.9425  1911.8          .0135922       7.21649E-03    169.643
( 195600  47500  10300  19400 )
 34  70.5364  1799.4          1.26468E-03    7.48663E-03    162.857
( 184100  45600  110700  18700 )
 35  42.6437  1087.85         .0241379       .0113821       105.714
( 111300  29600  5800  12300 )
 36  82.9502  2116.09         6.39854E-04    7.60870E-03    205
( 216500  57400  218800  18400 )
 37  70.1533  1789.62         .0152174       8.91720E-03    138.929
( 183100  38900  9200  15700 )
 38  51.8774  1323.4          .0175          8.09248E-03    143.929
( 135400  40300  8000  17300 )
 39  28.2753  721.323         1.33588E-03    .0134615       86.0714
( 73800  24100  104800  10400 )
 40  69.0038  1760.3          .0285714       1.27737E-03    404.286
( 180100  113200  4900  109600 )
 41  53.1418  1355.66         .021875        .0103704       114.286
( 138700  32000  6400  13500 )
 42  49.6169  1265.74         .0205882       .0107692       111.071
( 129500  31100  6800  13000 )
 43  48.3142  1232.5          .0264151       .0103704       111.429
( 126100  31200  5300  13500 )
 44  74.3678  1897.14         .0138614       5.83333E-03    199.643
( 194100  55900  10100  24000 )
 45  100.345  2559.82         .0126126       6.82927E-03    182.857
( 261900  51200  11100  20500 )
 46  75.0192  1913.75         .012844        5.69106E-03    205.357
( 195800  57500  10900  24600 )
 47  135.402  3454.14         .0103704       5.66802E-03    219.286
( 353400  61400  13500  24700 )
 48  160.575  4096.29         .0225806       .014           93.9286
( 419100  26300  6200  10000 )
 49  156.054  3980.96         .0233333       .0100719       118.929
( 407300  33300  6000  13900 )
 50  79.1188  2018.34         .0166667       7.25389E-03    162.857
( 206500  45600  8400  19300 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   50.5946      1290.68        2.53073E-03    2.29794E-03    96.0429
SD 52.1674      1330.8                                       91.1872
SE 7.37758      188.204                                      12.8958
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 7 MOT 6-656 SPEC G DISLOCATION PITS ONLY

OPERATOR IS TIM,HAYAT 6-11-79 MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.62

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	856.406	.0436942	35.0175	39.6376	.0427
(4813	5978	1999	1766)		
2	1380.43	.07043	25.0089	25.7448	.0603786
(7758	8453	2799	2719)		
3	614.235	.0313385	46.5735	48.2094	.0340714
(3452	4770	1503	1452)		
4	1576.16	.0804162	19.9147	22.0195	.0769357
(8858	10771	3515	3179)		
5	764.057	.0389825	36.6684	39.2817	.03995
(4294	5593	1909	1782)		
6	11.21	5.71937E-04	2333.33	2592.59	6.28571E-04
(63	88	30	27)		
7	28.1139	1.43438E-03	686.274	721.649	2.25714E-03
(158	316	102	97)		
8	173.31	8.84233E-03	150.215	143.737	.0114143
(974	1598	466	487)		
9	8.54093	4.35762E-04	3333.33	4375	4.71429E-04
(48	66	21	16)		
10	1.77936	9.07837E-05	11666.7	11666.7	5.71429E-05
(10	8	6	6)		
11	0	0	0	0	0
(0	0	0	0)		
12	53.0249	2.70535E-03	1521.74	679.612	1.46429E-03
(298	205	46	103)		
13	20.6406	1.05309E-03	1147.54	1372.55	1.92857E-03
(116	270	61	51)		
14	2.4911	1.27097E-04	11666.7	23333.3	1.07143E-04
(14	15	6	3)		
15	124.021	6.32762E-03	234.114	212.121	7.86429E-03
(697	1101	299	330)		
16	92.1708	4.70259E-03	268.199	275.591	6.55714E-03
(518	918	261	254)		
17	0	0	0	0	0
(0	0	0	0)		
18	0	0	0	0	0
(0	0	0	0)		
19	101.601	5.18375E-03	268.199	273.437	6.22857E-03
(571	872	261	256)		
20	392.883	.020045	76.5027	80.3674	.0205071
(2208	2871	915	871)		
21	0	0	0	0	0
(0	0	0	0)		
22	0	0	0	0	0
(0	0	0	0)		
23	0	0	0	0	0
(0	0	0	0)		
24	7.82918	3.99448E-04	3684.21	3333.33	4.85714E-04
(44	68	19	21)		
25	39.5018	2.01540E-03	736.842	752.688	1.96429E-03
(222	275	95	93)		

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          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   249.936      .0127518       122.266       129.505       .0126389
SD 435.757      .0222325                                    .0208437
SE 87.1513      4.44650E-03                                 4.16873E-03
 26  0  0        0              0             0
( 0  0  0  0 )
 27  0  0        0              0             0
( 0  0  0  0 )
 28  1421.89    .0725452       36.1384       23.5452       .0448714
( 7991  6282  1937  2973 )
 29  1179.36    .0601714       22.0264       27.5916       .0655072
( 6628  9171  3178  2537 )
 30  464.947    .0237218       54.816        61.674        .0278571
( 2613  3900  1277  1135 )
 31  394.662    .0201358       96.1538       73.3753       .0199571
( 2218  2794  728  954 )
 32  270.463    .0137991       105.422       102.79        .0135429
( 1520  1896  664  681 )
 33  53.7367    2.74167E-03    463.576       507.246       2.82857E-03
( 302  396  151  138 )
 34  236.477    .0120651       128.205       164.319       .0112357
( 1329  1573  546  426 )
 35  98.9324    5.04757E-03    660.377       492.958       2.80714E-03
( 556  393  106  142 )
 36  0  0        0              0             0
( 0  0  0  0 )
 37  0  0        0              0             0
( 0  0  0  0 )
 38  97.153     4.95679E-03    469.799       416.667       5.35000E-03
( 546  749  149  168 )
 39  620.996    .0316835       47.2973       55.205        .03145
( 3490  4403  1480  1268 )
 40  678.648    .0346249       43.6954       47.619        .0358643
( 3814  5021  1602  1470 )
 41  0  0        0              0             0
( 0  0  0  0 )
 42  3.02491    1.54332E-04    17500         17500         8.64286E-04
( 17  121  4  4 )
 43  45.1957    2.30591E-03    804.598       666.667       2.87857E-03
( 254  403  87  105 )
 44  3.91459    1.99724E-04    5833.33       2187.5        5.00000E-04
( 22  70  12  32 )
 45  159.609    8.14329E-03    291.667       204.678       5.30000E-03
( 897  742  240  342 )
 46  6.04982    3.08664E-04    5833.33       6363.64       2.35714E-04
( 34  33  12  11 )
 47  16.1922    8.26131E-04    1076.92       933.333       1.35000E-03
( 91  189  65  75 )
 48  2.13523    1.08940E-04    23333.3       17500         9.28572E-05
( 12  13  3  4 )
 49  2.31317    1.18019E-04    14000         17500         1.00000E-04
( 13  14  5  4 )
 50  6.40569    3.26821E-04    5000          5000          1.92857E-04
( 36  27  14  14 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   240.21       .0122556       131.713       134.636       .0117751
SD 405.798      .020704                                     .0190105
SE 57.3886      2.92799E-03                                 2.68850E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 8 JPL 6-656 SPEC H TWINS ONLY 6/21/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2912

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	97.4588	2486.19	.016092	1.66647E-04	435
(283800	121800	8700	840100)		
2	3.33104	84.9756	.116667	.1	239.286
(9700	67000	1200	1400)		
3	28.4684	726.235	.0215385	.0119658	98.9286
(82900	27700	6500	11700)		
4	786.951	20075.3	1.38285E-04	5.88235E-03	206.429
(2.29160E+06	57800	1.01240E+06	23800)		
4	85.1305	2171.7	.0194444	8.75000E-03	132.5
(247900	37100	7200	16000)		
5	7.93269	202.365	.127273	.0736842	17.8571
(23100	5000	1100	1900)		
6	0	0	0	0	
(0	0	0	0)		
7	155.804	3974.58	.0112	8.43373E-03	174.286
(453700	48800	12500	16600)		
8	146.326	3732.8	6.39269E-04	5.98291E-03	294.286
(426100	82400	219000	23400)		
9	159.615	4071.82	.0119658	.01	155.714
(464800	43600	11700	14000)		
10	143.063	3649.57	6.22222E-03	5.49020E-03	283.929
(416600	79500	22500	25500)		
11	73.7294	1880.85	.0172839	8.00000E-03	150
(214700	42000	8100	17500)		
12	95.6044	2438.89	.0135922	6.45161E-03	183.214
(278400	51300	10300	21700)		
13	111.229	2837.48	.0205882	9.27152E-03	392.143
(323900	109800	6800	15100)		
14	91.6209	2337.27	2.25080E-03	8.38323E-03	138.571
(266800	38800	62200	16700)		
15	84.0659	2144.54	.0202899	.0111111	111.071
(244800	31100	6900	12600)		
16	90.0755	2297.85	.0172839	7.56757E-03	154.643
(262300	43300	8100	18500)		
17	94.9863	2423.12	.0189189	7.25389E-03	156.429
(276600	43800	7400	19300)		
********AVERAGE********					
	NO.	NO./AREA	MFPV	MFPH	L/A
	86.3789	2203.54	5.94703E-03	2.22015E-03	183.403
SD	49.6833	1267.43			112.178
SE	12.05	307.397			27.2072
18	86.2637	2200.61	.0197183	7.00000E-03	160.357
(251200	44900	7100	20000)		
19	75.7212	1931.66	.02	7.95454E-03	143.214
(220500	40100	7000	17600)		
20	85.0962	2170.82	.0191781	6.93069E-03	162.5
(247800	45500	7300	20200)		
21	91.5865	2336.39	.016092	6.19469E-03	182.857
(266700	51200	8700	22600)		
22	83.5852	2132.27	.0157303	6.00858E-03	259.286
(243400	72600	8900	23300)		

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 23  33.1044  844.5          .0254545      5.94985E-04   122.143
( 96400  34200  5500  235300 )
 24  91.0714  2323.25        .0162791      7.29167E-03   161.429
( 265200  45200  8600  19200 )
 25  64.5261  1646.07        2.15054E-04   2.59403E-04   536.429
( 187900  150200  651000  539700 )
 26  0  0       0             0             0
( 0  0  0  0 )
 27  2.36951  60.4466         .2            .0933333      12.8571
( 6900  3600  700  1500 )
 28  6.04396  154.183         .0777778      .0388889      30
( 17600  8400  1800  3600 )
 29  1.99176  50.8102         .7            .466667       26.7857
( 5800  7500  200  300 )
 30  125.24  3194.91          8.18713E-03   5.93220E-03   244.643
( 364700  68500  17100  23600 )
 31  0  0       0             0             0             -
( 0  0  0  0 )
             ********AVERAGE********
       NO.      NO./AREA       MFPV          MFPH          L/A
   71.4529      1822.78       3.86087E-03   2.17119E-03   166.463
SD 49.3867      1259.86                                   125.776
SE 8.8701       226.278                                   22.59
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 8JPL 6-656 SPECH **DISLOCATION PITS**

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.6

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	35.3571	1.80394E-03	654.206	786.517	2.14286E-03
(198	300	107	89)		
2	29.2857	1.49417E-03	1044.78	1166.67	1.33571E-03
(164	187	67	60)		
3	3695	.18852	11.925	14.7244	.12065
(20692	16891	5870	4754)		
4	0	0	0	0	
(0	0	0	0)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	2843.21	.145062	9.56676	11.6086	.152857
(15922	21400	7317	6030)		
8	65.1786	3.32544E-03	292.887	358.974	4.95714E-03
(365	694	239	195)		
9	0	0	0	0	
(0	0	0	0)		
10	0	0	0	0	
(0	0	0	0)		
11	0	0	0	0	
(0	0	0	0)		
12	0	0	0	0	
(0	0	0	0)		
13	78.75	4.01786E-03	593.22	630.631	2.35000E-03
(441	329	118	111)		
14	0	0	0	0	
(0	0	0	0)		
15	84.8214	4.32762E-03	351.759	358.974	4.83571E-03
(475	677	199	195)		
16	0	0	0	0	
(0	0	0	0)		
17	0	0	0	0	
(0	0	0	0)		
		********AVERAGE********			
	NO.	NO./AREA	MFPV	MFPH	L/A
	401.859	.020503	85.5069	104.076	.0170076
SD	1057.5	.0539542			.0441016
SE	256.482	.0130858			.0106962
18	0	0	0	0	
(0	0	0	0)		
19	0	0	0	0	
(0	0	0	0)		
20	0	0	0	0	
(0	0	0	0)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		

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 23   1.25   6.37755E-05        23333.3        5833.33        0
( 7   0   3   12 )
 24   0   0        0             0              0
( 0   0   0   0 )
 25   74.8214   3.81742E-03     234.899        945.946        4.09286E-03
( 419   573   298   74 )
 26   39.1071   1.99526E-03     707.071        2413.79        3.46429E-03
( 219   485   99   29 )
 27   1391.43   .0709913        23.0263        25.0089        .0625929
( 7792   8763   3040   2799 )
 28   202.321   .0103225        156.25         160.183        .0105429
( 1133   1476   448   437 )
 29   485   .0247449           61.8921        71.2106        .0242214
( 2716   3391   1131   983 )
 30   354.821   .0181031        89.0585        113.269        .0167071
( 1987   2339   786   618 )
 31   150.714   7.68951E-03     212.121        222.222        6.70714E-03
( 844   939   330   315 )
 32   236.964   .01209          122.807        120.069        .0141929
( 1327   1987   570   583 )
              ********AVERAGE********
        NO.        NO./AREA        MFPV          MFPH          L/A
    305.251        .015574        108.622       129.6         .0134891
SD  813.923        .0415267                                   .0341545
SE  143.883        7.34095E-03                                6.03773E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 9 JPL 6-656 SPEC I TWINS ONLY 6/21/79

OPERATOR IS TIN,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2650

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VF,HF)					
1	111.057	2833.08	4.76190E-04	4.75382E-04	1051.79
(294300	294500	294000	294500)		
2	91.2076	2326.72	5.80191E-04	5.80191E-04	862.5
(241700	241500	241300	241300)		
3	103.132	2630.92	5.11883E-04	5.12070E-04	976.786
(273300	273500	273500	273400)		
4	106	2704.08	.0157303	7.21649E-03	166.071
(280900	46500	8900	19400)		
5	18.7547	478.437	.021875	1.16086E-03	92.8572
(49700	26000	6400	120600)		
6	113.547	2896.61	.0137255	7.21649E-03	170.357
(300900	47700	10200	19400)		
7	53.0943	1354.45	.0205882	.010219	117.857
(140700	33000	6800	13700)		
8	62.9057	1604.74	.0121739	6.51163E-03	193.214
(166700	54100	11500	21500)		
9	188.679	4813.25	.175	.233333	10
(500000	2800	800	600)		
9	0	0	0	0	
(0	0	0	0)		
10	23.9623	611.282	.0358974	.016092	75.3571
(63500	21100	3900	8700)		
11	110.075	2808.05	.0133333	6.27803E-03	190
(291700	53200	10500	22300)		
12	70.4528	1797.27	.012069	6.51163E-03	185.714
(186700	52000	11600	21500)		
13	569.849	14537	.155556	.0736842	16.7857
(1.51010E+06	4700	900	1900)		
13	52.3396	1335.19	.0212121	.010219	115.357
(138700	32300	6600	13700)		
14	61.434	1567.19	.0181818	7.95454E-03	144.643
(162800	40500	7700	17600)		
15	27.3585	697.921	.0368421	1.73160E-04	71.4286
(72500	20000	3800	808500)		
16	100.981	2576.05	.0212121	.0106061	114.643
(267600	32100	6600	13200)		
16	66.566	1698.11	.0134615	7.60870E-03	173.929
(176400	48700	10400	18400)		
17	159.057	4057.57	7.36842E-03	4.57516E-03	305
(421500	85400	19000	30600)		
18	166.151	4238.55	.0102941	6.39269E-03	220
(440300	61600	13600	21900)		
19	151.283	3859.26	.0110236	6.96517E-03	205
(400900	57400	12700	20100)		
20	0	0	0	0	
(0	0	0	0)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	0	0	0	0	
(0	0	0	0)		

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*********AVERAGE********
       NO.      NO./AREA        MFPV             MFPH          L/A
   67.3208      1717.37       3.38093E-03      1.62045E-03    231.211
SD 52.5219      1339.84                                       296.389
SE 10.9516      279.377                                       61.8014
 24  0  0       0               0                0
( 0  0  0  0 )
 25  3.82679   99.1529          .233333          .116667       9.64286
( 10300  2700  600  1200 )
 26  0  0       0               0                0
( 0  0  0  0 )
 27  170.491   4349.25          8.48485E-03      5.90717E-03   631.429
( 451800  176800  16500  23700 )
 28  134.943   3442.43          .0138614         .010219       132.5
( 357600  37100  10100  13700 )
 29  130.981   3341.36          1.27157E-03      5.90717E-03   136.071
( 347100  38100  110100  23700 )
 30  86.0755   2195.8           8.91720E-03      6.39269E-03   213.214
( 228100  59700  15700  21900 )
 31  73.6226   1878.13          .0104478         1.15321E-03   192.5
( 195100  53900  13400  121400 )
 32  268.189   6841.55          .0111111         7.60870E-03   182.857
( 710700  51200  12600  18400 )
 33  91.3585   2330.57          7.65027E-03      7.25389E-03   207.5
( 242100  58100  18300  19300 )
 34  0  0       0               0                0
( 0  0  0  0 )
 35  0  0       0               0                0
( 0  0  0  0 )
 36  .566038   14.4397          1.4              1.4           1.42857
( 1500  400  100  100 )
 37  0  0       0               0                0
( 0  0  0  0 )
 38  0  0       0               0                0
( 0  0  0  0 )
 39  4.5283    115.518          .7               1.39303E-03   2.85714
( 12000  800  200  100500 )
 40  20.8679   532.345          .0311111         .0358974      46.7857
( 55300  13100  4500  3900 )
 41  197.887   5048.13          .0358974         2.72692E-04   87.8571
( 524400  24600  3900  513400 )
 41  11.9623   305.16           .035             .021875       54.2857
( 31700  15200  4000  6400 )
 42  49.5472   1263.96          .0114754         4.42198E-04   155.357
( 131300  43500  12200  316600 )
 43  45.1698   1152.29          .0166667         .014433       95.7143
( 119700  26800  8400  9700 )
 44  61.6226   1572.01          1.74281E-04      7.36842E-03   168.929
( 163300  47300  803300  19000 )
 45  147.094   3752.41          .01              7.10660E-03   256.786
( 389800  71900  14000  19700 )
 46  85.7358   2187.14          .0115702         .01           139.643
( 227200  39100  12100  14000 )
 47  66.6038   1699.08          3.37675E-04      6.22222E-03   205.714
( 176500  57600  414600  22500 )
 48  46.3774   1183.1           1.38285E-04      7.73481E-03   175
( 122900  49000  1.01240E+06  18100 )
 49  4.41509   112.63           .0823529         .0777778      20
( 11700  5600  1700  1800 )
 50  103.736   2646.32          7.73481E-03      .010219       131.786
( 274900  36900  18100  13700 )
*********AVERAGE********
       NO.      NO./AREA        MFPV             MFPH          L/A
   63.123       1610.28       2.02587E-03      2.52125E-03    169.557
SD 60.2087      1535.94                                       230.197
SE 8.5148       217.214                                       32.5548
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 9 JPL 60656 SPEC I DISLOCATIONS ONLY 6/21/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.4

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	74.4445	3.79819E-03	598.291	443.038	2.87857E-03
(402	403	117	158)		
1	3.51852	1.79516E-04	6363.64	1147.54	7.14286E-04
(19	100	11	61)		
2	20.1852	1.02986E-03	11666.7	17500	1.71429E-04
(109	24	6	4)		
3	0	0	0	0	
(0	0	0	0)		
4	0	0	0	0	
(0	0	0	0)		
5	0	0	0	0	
(0	0	0	0)		
6	2.03704	1.03930E-04	1707.32	7000	2.78571E-04
(11	39	41	10)		
7	156.481	7.98375E-03	226.537	210.843	8.04286E-03
(845	1126	309	332)		
8	10.5556	5.38549E-04	2333.33	2121.21	7.00000E-04
(57	98	30	33)		
9	80.3704	4.10053E-03	322.581	169.082	4.80714E-03
(434	673	217	414)		
10	605.37	.0308863	48.9168	53.4351	.0321714
(3269	4504	1431	1310)		
11	68.7037	3.50529E-03	437.5	466.667	4.60714E-03
(371	645	160	150)		
12	0	0	0	0	
(0	0	0	0)		
13	966.111	.0492914	36.1757	39.818	.043
(5217	6020	1935	1758)		
14	112.037	5.71618E-03	225.08	272.374	5.85000E-03
(605	819	311	257)		
15	0	0	0	0	
(0	0	0	0)		
16	65.5556	3.34467E-03	382.514	400	4.30714E-03
(354	603	183	175)		
17	242.037	.0123488	142.276	165.485	.0124714
(1307	1746	492	423)		
18	210.556	.0107426	135.659	149.254	.0103929
(1137	1455	516	469)		
19	0	0	0	0	
(0	0	0	0)		
20	0	0	0	0	
(0	0	0	0)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	0	0	0	0	
(0	0	0	0)		
24	0	0	0	0	
(0	0	0	0)		

```
 25   0   0        0                0                0
( 0   0   0   0 )
              ********AVERAGE********
        NO.       NO./AREA         MFPV             MFPH          L/A
    101.741       5.19086E-03    310.174          324.314       5.10057E-03
SD  218.818       .0111642                                      .0103151
SE  43.7636       2.23284E-03                                   2.06303E-03
 26   128.148    6.53817E-03      216.049          225.08        7.33572E-03
( 692   1027   324   311 )
 27   166.296    8.48451E-03      158.014          168.675       .0100929
( 898   1413   443   415 )
 28   329.815    .0168273         92.3483          88.2724       .0186143
( 1781   2606   758   793 )
 29   0   0        0                0                0
( 0   0   0   0 )
 30   0   0        0                0                0
( 0   0   0   0 )
 31   0   0        0                0                0
( 0   0   0   0 )
 32   26.2963    1.34165E-03      972.222          1489.36       1.06429E-03
( 142   149   72   47 )
 33   61.1111    3.11791E-03      486.111          341.463       4.36429E-03
( 330   611   144   205 )
 34   0   0        0                0                0
( 0   0   0   0 )
 35   0   0        0                0                0
( 0   0   0   0 )
 36   0   0        0                0                0
( 0   0   0   0 )
 37   0   0        0                0                0
( 0   0   0   0 )
 38   18.8889    9.63719E-04      2000             1750          9.71429E-04
( 102   136   35   40 )
 39   537.037    .0273999         48.2094          58.9226       .03235
( 2900   4529   1452   1188 )
 40   472.778    .0241213         58.382           64.8749       .02435
( 2553   3409   1199   1079 )
 41   137.222    7.00114E-03      189.702          235.69        8.15000E-03
( 741   1141   369   297 )
 42   37.4074    1.90854E-03      721.649          804.598       2.07857E-03
( 202   291   97   87 )
 43   42.5926    2.17309E-03      636.364          642.202       2.99286E-03
( 230   419   110   109 )
 44   0   0        0                0                0
( 0   0   0   0 )
 45   0   0        0                0                0
( 0   0   0   0 )
 46   49.8148    2.54157E-03      476.19           526.316       2.94286E-03
( 269   412   147   133 )
 47   0   0        0                0                0
( 0   0   0   0 )
 48   0   0        0                0                0
( 0   0   0   0 )
 49   32.4074    1.65344E-03      1014.49          1044.78       1.88571E-03
( 175   264   69   67 )
 50   0   0        0                0                0
( 0   0   0   0 )
              ********AVERAGE********
        NO.       NO./AREA         MFPV             MFPH          L/A
    91.6667       4.67687E-03    322.254          344.251       4.89414E-03
SD  186.054       9.49257E-03                                   9.34610E-03
SE  26.3121       1.34245E-03                                   1.32174E-03
*
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MRI 10 JPL 6-791 SPEC A TWINS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2500

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	118.84	3031.63	1.71422E-04	5.95745E-03	222.143
(297100	62200	816700	23500)		
2	87.8	2239.8	9.03226E-03	6.57277E-03	209.286
(219500	58600	15500	21300)		
~~3~~	264.56	6748.98	8.58896E-03	6.57277E-03	205.357
(661400	57500	16300	21300) FIELD DELETED		
~~4~~	361.96	9233.67	1.53106E-04	1.69965E-04	609.643
(904900	170700	914400	823700) FIELD DELETED		
~~5~~	394.8	10071.4	2.70218E-04	6.00858E-03	227.857
(987000	63800	518100	23300) FIELD DELETED		
3	175.32	4472.45	1.58928E-04	1.24522E-04	405
(438300	113400	880900	1.12430E+06)		
~~6~~	674.52	17207.1	3.74131E-04	1.27296E-04	897.143
(1.68630E+06	251200	374200	1.09980E+06) FIELD DELETED		
~~7~~	1298.08	33114.3	1.37390E-04	5.08739E-05	508.214
(3.24520E+06	142300	1.01900E+06	2.75190E+06) FIELD DELETED		
4	107.52	2742.86	6.93069E-03	7.03871E-04	286.786
(268800	80300	20200	198900)		
5	663.4	16923.5	1.24699E-04	1.60920E-03	440.714
(1.65850E+06	123400	1.12270E+06	87000)		
6	243.44	6210.21	7.90960E-03	5.93220E-03	244.286
(608600	68400	17700	23600)		
7	93.28	2379.59	7.10660E-03	5.93220E-03	282.5
(233200	79100	19700	23600)		
8	167.44	4271.43	3.04216E-04	5.85774E-03	245.714
(418600	68800	460200	23900)		
9	116.16	2963.27	1.90892E-04	1.36094E-04	451.786
(290400	126500	733400	1.02870E+06)		
10	362.48	9246.94	3.51520E-05	7.48703E-05	883.571
(906200	247400	3.98270E+06	1.86990E+06)		
~~11~~	583.56	14886.7	8.25715E-05	2.86240E-04	198.571
(1.45890E+06	55600	1.69550E+06	489100) FIELD DELETED		
~~11~~	1159.84	29587.8	1.24004E-04	2.56598E-04	435
(2.89960E+06	121800	1.12900E+06	545600) FIELD DELETED		
11	53.68	1369.39	6.64137E-04	1.87869E-04	142.143
(134200	39800	210800	745200)		
~~12~~	569.36	14524.5	1.12054E-04	.0106061	120.357
(1.42340E+06	33700	1.24940E+06	13200) FIELD DELETED		
~~12~~	333.24	8501.02	1.29510E-03	1.30112E-03	453.929
(833100	127100	108100	107600)	FIELD DELETED	
12	0	0	0	0	
(0	0	0	0)		
~~13~~	105.92	2702.04	.04375	1.35790E-03	514.643
(264800	144100	3200	103100) FIELD DELETED		
13	0	0	0	0	
(0	0	0	0)		
14	0	0	0	0	
(0	0	0	0)		
15	.76	19.3878	.466667	.7	2.5
(1900	700	300	200)		
16	0	0	0	0	
(0	0	0	0)		
17	0	0	0	0	
(0	0	0	0)		
18	0	0	0	0	
(0	0	0	0)		

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 19   0   0        0                0                0
( 0   0   0   0 )
 20   0   0        0                0                0
( 0   0   0   0 )
 21   0   0        0                0                0
( 0   0   0   0 )
 22   0   0        0                0                0
( 0   0   0   0 )
 23   0   0        0                0                0
( 0   0   0   0 )
 24   0   0        0                0                0
( 0   0   0   0 )
 25   0   0        0                0                0
( 0   0   0   0 )
                ********AVERAGE********
         NO.       NO./AREA         MFPV             MFPH            L/A
    87.6048        2234.82        4.22664E-04      6.76969E-04     152.657
SD 149.148         3804.81                                         215.027
SE 29.8297         760.962                                         43.0055
 26  43.2  1102.04                .155556          6.96864E-04     11.7857
( 108000  3300   900   200900 )
 26   0   0        0                0                0
( 0   0   0   0 )
 27   0   0        0                0                0
( 0   0   0   0 )
 28   0   0        0                0                0
( 0   0   0   0 )
 29   0   0        0                0                0
( 0   0   0   0 )
 30   0   0        0                0                0
( 0   0   0   0 )
 31   0   0        0                0                0
( 0   0   0   0 )
 32   0   0        0                0                0
( 0   0   0   0 )
 33   0   0        0                0                0
( 0   0   0   0 )
 34   0   0        0                0                0
( 0   0   0   0 )
 35   0   0        0                0                0
( 0   0   0   0 )
 36   0   0        0                0                0
( 0   0   0   0 )
 37   0   0        0                0                0
( 0   0   0   0 )
 38   0   0        0                0                0
( 0   0   0   0 )
 39   0   0        0                0                0
( 0   0   0   0 )
 40   0   0        0                0                0
( 0   0   0   0 )
 41   0   0        0                0                0
( 0   0   0   0 )
 42   0   0        0                0                0
( 0   0   0   0 )
 43   0   0        0                0                0
( 0   0   0   0 )
 44   0   0        0                0                0
( 0   0   0   0 )
 45   0   0        0                0                0
( 0   0   0   0 )
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 46   0   0        0                0                0
( 0   0   0   0 )
 47   0   0        0                0                0
( 0   0   0   0 )
 48   0   0        0                0                0
( 0   0   0   0 )
 49   0   0        0                0                0
( 0   0   0   0 )
 50   0   0        0                0                0
( 0   0   0   0 )
                 ********AVERAGE********
         NO.       NO./AREA         MFPV             MFPH            L/A
    43.8024        1117.41        8.45329E-04      1.35394E-03     76.3286
SD 114.198         2913.23                                         170.131
SE 16.1501         411.992                                         24.0601
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MRI 10 JPL6-791 SPEC A DISLOCATION PITS ONLY 6/21/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6.2

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	213.387	.0108871	268.199	364.583	6.99286E-03
(1323	979	261	192)		
2	221.613	.0113068	160.92	140.562	.0125286
(1374	1754	435	498)		
3	370.161	.0188858	98.3146	90.7912	.0134571
(2295	1884	712	771)		
4	229.032	.0116853	118.845	135.397	.0124357
(1420	1741	589	517)		
5	506.29	.0258311	93.3333	84.8485	.0168929
(3139	2365	750	825)	FIELD DELETED	
5	192.258	9.80909E-03	147.679	170.732	7.58572E-03
(1192	1062	474	410)		
6	452.258	.0230744	71.2106	77.6914	.0218143
(2804	3054	983	901)	FIELD DELETED	
6	0	0	0	0	
(0	0	0	0)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	12.0968	6.17182E-04	700	933.333	1.05000E-03
(75	147	100	75)		
10	51.4516	2.62508E-03	419.162	1400	2.54286E-03
(319	356	167	50)		
11	255.323	.0130267	118.644	155.902	.0127929
(1583	1791	590	449)		
12	36.6129	1.86801E-03	679.612	1346.15	1.93571E-03
(227	271	103	52)		
13	244.355	.0124671	131.332	142.566	.0113786
(1515	1593	533	491)		
14	507.258	.0258805	80.9248	74.1525	.0175214
(3145	2453	865	944)		
15	159.032	8.11389E-03	266.16	270.27	7.02143E-03
(986	983	263	259)		
16	370.968	.0189269	91.7431	68.2927	.0194143
(2300	2718	763	1025)		
17	105.968	5.40652E-03	253.623	285.714	5.97143E-03
(657	836	276	245)		
18	199.516	.0101794	223.642	238.908	6.27857E-03
(1237	879	313	293)		
19	142.903	7.29098E-03	198.864	194.444	7.77143E-03
(886	1088	352	360)		
20	808.065	.0412278	37.9198	40.0687	.0358643
(5010	5021	1846	1747)		
20	195.645	9.98190E-03	186.667	197.183	7.89286E-03
(1213	1105	375	355)		
21	151.935	7.75181E-03	207.715	224.359	6.55714E-03
(942	918	337	312)		
22	471.452	.0240537	87.1731	89.6287	.0188929
(2923	2645	803	781)		
23	318.387	.0162442	107.034	136.187	.0144786
(1974	2027	654	514)		
24	220.806	.0112656	197.74	201.149	8.85000E-03
(1369	1239	354	348)		

25	227.581	.0116113	155.902	133.185	7.39236E-03
(1411	1035	449	378)		
		********AVERAGE********			
	NO.	NO./AREA	MFPV	MFPH	L/A
	195.91	9.99540E-03	179.156	187.799	8.42972E-03
SD	136.796	6.97937E-03			5.65905E-03
SE	27.3591	1.39587E-03			1.13191E-03
26	183.065	9.34003E-03	173.267	190.736	7.40714E-03
(1135	1037	404	367)		
27	373.548	.0190586	93.9597	118.644	.0155429
(2316	2176	745	590)		
28	645.161	.0329164	44.7284	56.7261	.0280857
(4000	3932	1565	1234)		
29	597.258	.0304724	60.3448	79.8176	.0245
(3703	3430	1160	877)		
30	1236.77	.0631007	23.8095	24.6132	.0594643
(7668	8325	2940	2844)	FIELD DELETED	
30	185.645	9.47169E-03	198.864	209.581	7.52857E-03
(1151	1054	352	334)		
31	215	.0109694	165.877	142.566	8.93572E-03
(1333	1251	422	491)		
32	190.645	9.72680E-03	175.439	197.183	9.80714E-03
(1182	1373	399	355)		
33	449.355	.0229263	91.0273	101.302	.0151786
(2786	2125	769	691)		
34	399.032	.0203588	84.1346	105.9	.0146571
(2474	2052	832	661)		
35	390.806	.0199391	85.9951	106.87	.0162929
(2423	2281	814	655)		
36	347.903	.0177502	117.057	102.041	.0136286
(2157	1908	598	686)		
37	173.065	8.82982E-03	191.257	201.729	8.31429E-03
(1073	1164	366	347)		
38	990.484	.0505349	43.75	50	.0324643
(6141	4545	1600	1400)	FIELD DELETED	
38	884.032	.0451037	35.9712	39.1718	.0432286
(5481	6052	1946	1787)		
39	823.548	.0420178	36.0825	39.5257	.0407214
(5106	5701	1940	1771)		
40	662.419	.0337969	43.13	49.1228	.0360214
(4107	5043	1623	1425)		
41	358.065	.0182686	85.0547	93.209	.0172286
(2220	2412	823	751)		
42	592.742	.0302419	51.207	54.7731	.0299643
(3675	4195	1367	1278)		
43	941.935	.0480579	32.1396	35.7508	.0469572
(5840	6574	2178	1958)		
44	1702.58	.0868664	19.9544	23.4427	.0721857
(10556	10106	3508	2986)		
45	2405.97	.122754	13.9442	15.674	.107407
(14917	15037	5020	4466)		
46	1545.81	.0788677	18.3968	21.7054	.0802
(9584	11228	3805	3225)		
47	121.935	6.22120E-03	243.902	307.018	8.43572E-03
(756	1181	287	228)		
48	81.6129	4.16393E-03	281.124	315.315	5.33571E-03
(506	747	249	222)		
49	106.613	5.43944E-03	225.806	286.885	6.82143E-03
(661	955	310	244)		
50	146.935	7.49671E-03	166.667	185.185	8.90000E-03
(911	1246	420	378)		
		********AVERAGE********			
	NO.	NO./AREA	MFPV	MFPH	L/A
	389.448	.0198188	83.9933	93.7684	.0176806
SD	447.38	.0228255			.0207168
SE	63.2691	3.22801E-03			2.92980E-03

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 11 JPL 6-791 SPEC B TWINS ONLY 6/23/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2650

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	578.83	14766.1	3.93347E-05	6.14008E-05	1895.71
(1.53390E+06	530800	3.55920E+06	2.28010E+06)	FIELD DELETED	
1	93.0943	2374.86	6.03448E-03	1.80041E-04	282.5
(246700	79100	23200	777600)		
2	378.113	9645.75	5.78512E-03	5.16605E-03	269.286
(1.00200E+06	75400	24200	27100)	FIELD DELETED	
2	849.094	21660.6	6.63507E-03	1.19220E-04	218.214
(2.25010E+06	61100	21100	1.17430E+06)	FIELD DELETED	
2	116.491	2971.7	7.21649E-03	8.48485E-03	215.714
(308700	60400	19400	16500)		
3	62.1887	1586.45	9.65517E-03	.0112903	151.429
(164800	42400	14500	12400)		
4	88.1887	2249.71	9.72222E-03	.010219	159.286
(233700	44600	14400	13700)		
5	90.0377	2296.88	.0106061	9.85915E-03	152.143
(238600	42600	13200	14200)		
6	71.8113	1831.92	.0113821	.0112	136.429
(190300	38200	12300	12500)		
7	68.9057	1757.8	.0133333	.0112	125
(182600	35000	10500	12500)		
8	26.4151	673.855	.0237288	.0225806	72.5
(7.0000	20300	5900	6200)		
9	68	1734.69	.0130841	.0110236	131.429
(180200	36800	10700	12700)		
10	69.5094	1773.2	.0141414	.0103704	127.143
(184200	35600	9900	13500)		
11	110.302	2813.82	.0121739	9.03226E-03	147.857
(292300	41400	11500	15500)		
12	90.9057	2319.02	.0113821	9.33333E-03	150
(240900	42000	12300	15000)		
13	82.717	2110.13	.0100719	8.64197E-03	163.571
(219200	45800	13900	16200)		
14	88.9434	2268.96	9.15033E-03	9.15033E-03	175.357
(235700	49100	15300	15300)		
15	64.2264	1638.43	.01	.0118644	148.214
(170200	41500	14000	11800)		
16	65.434	1669.23	.0113821	.0117647	133.929
(173400	37500	12300	11900)		
17	70.9434	1809.78	.0130841	.0117647	123.214
(188000	34500	10700	11900)		
18	86.1887	2198.69	.0121739	.0107692	137.857
(228400	38600	11500	13000)		
19	55.2453	1409.32	.0141414	.014	110
(146400	30800	9900	10000)		
20	100.377	2560.65	.0114754	9.58904E-03	148.929
(266000	41700	12200	14600)		
21	29.5849	754.717	.0191781	.0181818	77.8571
(78400	21800	7300	7700)		
22	57.0566	1455.53	.0130841	.0115702	129.286
(151200	36200	10700	12100)		
23	42.4906	1083.94	.0145833	.0132075	111.429
(112600	31200	9600	10600)		
24	67.7358	1727.96	.0132075	9.85915E-03	133.571
(179500	37400	10600	14200)		

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 25  110.566  2820.56          .0114754       9.85915E-03    151.429
( 293000  42400  12200  14200 )
             ********AVERAGE********
       NO.      NO./AREA         MFPV           MFPH          L/A
   75.0943      1915.67         .0113636       3.22343E-03   143.843
SD 22.7996      581.621                                      39.8272
SE 4.55992      116.324                                      7.96544
 26  59.7358  1523.87          .0112903       .0112903       138.214
( 158300  38700  12400  12400 )
 27  90.9811  2320.95          .0100719       9.33333E-03    163.929
( 241100  45900  13900  15000 )
 28  46.9057  1196.57          .0157303       .0145833       102.143
( 124300  28600  8900  9600 )
 29  84.1887  2147.67          .0126126       .0107692       136.429
( 223100  38200  11100  13000 )
 30  62.7925  1601.85          .0147368       .0132075       112.5
( 166400  31500  9500  10600 )
 31  47.3208  1207.16          .0162791       .0148936       97.1429
( 125400  27200  8600  9400 )
 32  58.3396  1488.26          .0159091       .0153846       393.929
( 154600  110300  8800  9100 )
 33  26.3396  671.929          .0254545       .025           61.0714
( 69800  17100  5500  5600 )
 34  41.0566  1047.36          .0241379       .021875        68.5714
( 108800  19200  5800  6400 )
 35  35.0566  894.301          .0233333       .02            73.2143
( 92900  20500  6000  7000 )
 36  19.7736  504.428          .0215385       .0254545       63.5714
( 52400  17800  6500  5500 )
 37  40.9434  1044.47          .0197183       .028           69.6429
( 108500  19500  7100  5000 )
 38  22  561.225               .0264151       .0241379       57.5
( 58300  16100  5300  5800 )
 39  85.3208  2176.55          9.21053E-03    7.32984E-03    200
( 226100  56000  15200  19100 )
 40  78.8679  2011.94          .0107692       9.45946E-03    153.929
( 209000  43100  13000  14800 )
 41  91.5849  2336.35          .0105263       7.65027E-03    186.071
( 242700  52100  13300  18300 )
 42  79.0943  2017.71          .0111111       7.65027E-03    178.214
( 209600  49900  12600  18300 )
 43  82  2091.84               .0106061       .0107692       153.214
( 217300  42900  13200  13000 )
 44  79.0566  2016.75          9.03226E-03    7.00000E-03    211.071
( 209500  59100  15500  20000 )
 45  84.0377  2143.82          .0117647       9.09091E-03    155
( 222700  43400  11900  15400 )
 46  81.5472  2080.29          .0103704       .0118644       144.286
( 216100  40400  13500  11800 )
 47  133.321  3401.04          7.90960E-03    6.86274E-03    227.143
( 353300  63600  17700  20400 )
 48  103.132  2630.92          9.45946E-03    7.00000E-03    210
( 273300  58800  14800  20000 )
 49  88.6415  2261.26          9.39597E-03    8.91720E-03    177.143
( 234900  49600  14900  15700 )
 50  96  2448.98               9.72222E-03    6.93069E-03    208.929
( 254400  58500  14400  20200 )
             ********AVERAGE********
       NO.      NO./AREA         MFPV           MFPH          L/A
   71.9079      1834.39         .0119169       4.97442E-03   146.779
SD 25.546       651.683                                      58.5972
SE 3.61275      92.1619                                      8.2869
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 11 JPL 6-791 SPECB DISLOCATIONS ONLY 6/23/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.6

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	11.25	5.73980E-04	259.259	210.843	1.15714E-03
(63	162	270	332)		
2	647.321	.0330266	39.0407	39.8406	.0303286
(3625	4246	1793	1757)		
3	1754.64	.0895226	14.4449	13.9748	.103143
(9826	14440	4846	5009)		
4	2653.21	.135368	10.4853	11.5875	.778143
(14858	108940	6676	6041)		
5	1684.64	.0859512	17.0982	16.5328	.805786
(9434	112810	4094	4234)		
6	795.536	.0405886	29.661	27.3117	.0508571
(4455	7120	2360	2563)		
7	0	0	0	0	
(0	0	0	0)		
8	681.429	.0347668	45.425	47.3293	.318207
(3816	44549	1541	1479)		
9	105.179	5.36625E-03	201.729	374.332	7.47857E-03
(589	1047	347	187)		
10	41.6071	2.12281E-03	214.067	666.667	5.52857E-03
(233	774	327	105)		
11	500.893	.0255558	72.9927	84.6433	.0210429
(2805	2946	959	827)		
12	67.8571	3.46210E-03	122.592	193.906	4.63571E-03
(380	649	571	361)		
13	.535714	2.73324E-05	0	7777.78	5.00000E-05
(3	7	0	9)		
14	65.8929	3.36188E-03	5384.61	1014.49	1.25714E-03
(369	176	13	69)		
15	90.7143	4.62828E-03	304.348	419.162	4.22857E-03
(508	592	230	167)		
16	1063.04	.0542365	26.8096	29.838	.3468
(5953	48552	2611	2346)		
17	1251.61	.0638575	19.1257	2.99953	.0687286
(7009	9622	3660	23337)		
18	743.214	.0379191	35.3714	37.0174	.0431857
(4162	6046	1979	1891)		
19	552.5	.0281888	44.9871	47.749	.0309786
(3094	4337	1556	1466)		
20	1158.57	.0591108	22.5588	27.2586	.0598429
(6488	8378	3103	2568)		
21	1472.32	.0751185	18.4697	19.5859	.0803214
(8245	11245	3790	3574)		
22	1011.25	.0515944	20.7285	20.6064	.0621286
(5663	8698	3377	3397)		
23	618.929	.031578	32.5885	39.7276	.0417429
(3466	5844	2148	1762)		
24	911.429	.0465015	25.0089	27.1528	.0592
(5104	8288	2799	2578)		

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 25  559.286   .028535          40.253          44.3319          .0332
( 3132  4648  1739  1579 )
             ********AVERAGE********
        NO.       NO./AREA         MFPV            MFPH          L/A
    737.714       .0376385       34.4563         25.873          .118319
SD  656.092       .0334741                                       .216226
SE  131.218       6.69482E-03                                    .0432453
 26  403.393   .0205813         117.253         178.117          .0116286
( 2259  1628  597  393 )
 27  948.036   .0483692         25.6786         34.1797          .621464
( 5309  87005  2726  2048 )
 28  235.357   .012008          83.3333         153.846          .0148786
( 1318  2083  840  455 )
 29  906.964   .0462737         34.398          34.3643          .0428072
( 5079  5993  2035  2037 )
 30  742.143   .0378644         35.2113         37.037           .116414
( 4156  16298  1988  1890 )
 31  1052.68   .0537081         26.2369         29.9145          .0499214
( 5895  6989  2668  2340 )
 32  1343.75   .0685587         18.272          21.9573          .145957
( 7525  20434  3831  3188 )
 33  802.857   .0409621         27.7447         32.0513          .0453857
( 4496  6354  2523  2184 )
 34  730.714   .0372813         100.575         59.8291          4.91429E-03
( 4092  688  696  1170 )
 35  1203.21   .0613885         35.5691         47.9124          .323293
( 6738  45261  1968  1461 )
 36  783.214   .0399599         38.7812         40.864           .0393429
( 4386  5508  1805  1713 )
 37  845.714   .0431487         36.3636         45.1613          .0409929
( 4736  5739  1925  1550 )
 38  1421.96   .0725492         21.1353         20.7407          .429407
( 7963  60117  3312  3375 )
 39  1427.86   .0728499         19.3157         21.2895          .0759143
( 7996  10628  3624  3288 )
 40  615.357   .0313958         64.7549         56.6343          .0246786
( 3446  3455  1081  1236 )
 41  1109.46   .0566053         31.2221         33.0344          .0475286
( 6213  6654  2242  2119 )
 42  591.786   .0301932         58.9722         62.724           .0252429
( 3314  3534  1187  1116 )
 43  25.5357   1.30284E-03      2258.06         0                1.03571E-03
( 143  145  31  0 )
 44  .535714   2.73324E-05      0               0                0
( 3  0  0  0 )
 45  0  0      0                0               0
( 0  0  0  0 )
 46  0  0      0                0               0
( 0  0  0  0 )
 47  0  0      0                0               0
( 0  0  0  0 )
 48  0  0      0                0               0
( 0  0  0  0 )
 49  0  0      0                0               0
( 0  0  0  0 )
 50  0  0      0                0               0
( 0  0  0  0 )
             ********AVERAGE********
        NO.       NO./AREA         MFPV            MFPH          L/A
    672.668       .0343198       40.7602         35.2819          .100376
SD  585.202       .0298572                                       .186779
SE  82.76         4.22245E-03                                    .0264145
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 12 JPL 6-791 SPEC C TWINS ONLY

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3200

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	1.65625	42.2513	.7	.28	5.35714
(5300	1500	200	500)		
2	1.65625	42.2513	.466667	.28	1.78571
(5300	500	300	500)		
3	149.938	3824.94	.0225806	.0411765	63.9286
(479800	17900	6200	3400)		
4	145.5	3711.74	.0109375	.0212121	120.357
(465600	33700	12800	6600)		
5	127.75	3258.93	5.42636E-03	.0110236	243.214
(408800	68100	25800	12700)		
6	137.594	3510.05	7.73481E-03	.0142857	171.786
(440300	48100	18100	9800)		
7	152.156	3881.54	.056	.0538461	33.5714
(486900	9400	2500	2600)		
8	120.031	3062.02	4.98221E-03	.0108527	257.5
(384100	72100	28100	12900)		
9	141.125	3600.13	.0411765	.0411765	40.7143
(451600	11400	3400	3400)		
10	150.063	3828.13	.0451613	.0388889	42.5
(480200	11900	3100	3600)		
11	82.2813	2099.01	.0125	.0157303	119.643
(263300	33500	11200	8900)		
12	49	1250	.0168675	.0175	95
(156800	26600	8300	8000)		
13	14.9688	381.856	.0333333	.0368421	51.7857
(47900	14500	4200	3800)		
14	2.09375	53.412	.35	.28	5.71429
(6700	1600	400	500)		
15	76.7813	1958.71	9.72222E-03	.0116667	157.857
(245700	44200	14400	12000)		
16	94.875	2420.28	.0177215	.0194444	184.286
(303600	51600	7900	7200)		
17	40.0625	1022	.0194444	.0181818	83.2143
(128200	23300	7200	7700)		
18	77.7188	1982.62	.0141414	.0125	113.929
(248700	31900	9900	11200)		
19	63.5313	1620.7	.014433	.0130841	120.357
(203300	33700	9700	10700)		
20	64.0938	1635.04	.0102941	.01	146.071
(205100	40900	13600	14000)		
21	77.625	1980.23	.0103704	9.27152E-03	387.143
(248400	108400	13500	15100)		
22	59.2188	1510.68	.0150538	.0130841	107.5
(189500	30100	9300	10700)		
23	80.8438	2062.34	.0118644	.0107692	138.214
(258700	38700	11800	13000)		
24	84.3125	2150.83	.0116667	.0110236	137.143
(269800	38400	12000	12700)		

ORIGINAL PAGE IS
OF POOR QUALITY

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 25  21.6563  552.455          .0212121       .0259259       68.5714
( 69300  19200  6600  5400 )
            ********AVERAGE********
       NO.      NO./AREA        MFPV           MFPH           L/A
   80.6612      2057.69        .014553        .0177755       115.886
SD 48.9811      1249.52                                      86.5189
SE 9.79622      249.904                                      17.3038
 26  40.1563  1024.39          6.56969E-04    .0127273       141.786
( 128500  39700  213100  11000 )
 27  74.4688  1899.71          9.72222E-03    .0121739       148.571
( 238300  41600  14400  11500 )
 28  78.5625  2004.15          .0100719       .0109375       148.929
( 251400  41700  13900  12800 )
 29  50.7813  1295.44          .0130841       .0138614       113.214
( 162500  31700  10700  10100 )
 30  92.2188  2352.52          8.58896E-03    9.33333E-03    175.714
( 295100  49200  16300  15000 )
 31  58.1875  1484.38          .010219        .0108527       153.214
( 186200  42900  13700  12900 )
 32  101.844  2598.06          .0105263       .0106061       118.929
( 325900  33300  13300  13200 )
 33  89.5625  2284.76          9.52381E-03    8.91720E-03    170.714
( 286600  47800  14700  15700 )
 34  82.8438  2113.36          .01            .0104478       162.857
( 265100  45600  14000  13400 )
 35  106.594  2719.23          9.09091E-03    9.15033E-03    178.929
( 341100  50100  15400  15300 )
 36  105.094  2680.96          9.72222E-03    9.21053E-03    226.429
( 336300  63400  14400  15200 )
 37  120.813  3081.95          .0126126       .0132075       131.786
( 386600  36900  11100  10600 )
 38  114  2908.16              .01            9.79021E-03    166.786
( 364800  46700  14000  14300 )
 39  112.688  2874.68          .0122807       .0119658       135.714
( 360600  38000  11400  11700 )
 40  90.0938  2298.31          .010219        .0105263       151.786
( 288300  42500  13700  13300 )
 41  33.4063  852.2            .0197183       .0202899       76.0714
( 106900  21300  7100  6900 )
 42  54.75  1396.68            .0133333       .0135922       116.071
( 175200  32500  10500  10300 )
 43  66.1875  1688.46          .010687        .0112903       146.786
( 211800  41100  13100  12400 )
 44  94.9375  2421.88          .0135922       .0116667       125.357
( 303800  35100  10300  12000 )
 45  93.0313  2373.25          9.21053E-03    9.79021E-03    165
( 297700  46200  15200  14300 )
 46  85.375  2177.93           9.65517E-03    .0100719       157.143
( 273200  44000  14500  13900 )
 47  108.188  2759.89          .0123894       .0119658       134.286
( 346200  37600  11300  11700 )
 48  89.0625  2272             .0106061       .01            155
( 285000  43400  13200  14000 )
 49  12.0625  307.717          .0466667       .0666667       29.6429
( 38600  8300  3000  2100 )
 50  89.5313  2283.96          9.58904E-03    9.52381E-03    165
( 286500  46200  14600  14700 )
            ********AVERAGE********
       NO.      NO./AREA        MFPV           MFPH           L/A
   81.2194      2071.92        9.24214E-03    .0138559       129.857
SD 39.4776      1007.08                                      67.7633
SE 5.58298      142.423                                      9.58318
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 12 JPL 6-791 SPEC C DISLOCATION PITS ONLY

OPERATOR IS HAYAT,TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	539.4	.0275204	63.2911	62.6118	.0255571
(2697	3578	1106	1118)		
2	250.6	.0127857	135.922	140	.0109357
(1253	1531	515	500)		
3	157.4	8.03061E-03	0	156.25	8.92857E-03
(787	1250	0	448)		
4	2061.2	.105163	17.4346	21.8477	.0764857
(10306	10708	4015	3204)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	0	14000	2258.06	0	
(0	0	5	31)	FIELD DELETED	
7	5.2	2.65306E-04	0	0	0
(26	0	0	0)		
8	15.2	7.75510E-04	1489.36	2333.33	7.50000E-04
(76	105	47	30)		
9	1603	.0817857	.341937	17.7665	.0878286
(8015	12296	204716	3940)		
10	17.2	8.77551E-04	121.317	777.778	2.28571E-04
(86	32	577	90)		
11	106.8	5.44898E-03	583.333	1707.32	7.21429E-04
(534	101	120	41)		
12	5.2	2.65306E-04	5000	1489.36	2.37143E-03
(26	332	14	47)		
13	424.8	.0216735	105.9	88.9454	.0172286
(2124	2412	661	787)		
14	0	0	0	0	
(0	0	0	0)		
15	10.6	5.40816E-04	4666.67	7777.78	3.28571E-04
(53	46	15	9)		
16	0	0	0	0	
(0	0	0	0)		
17	0	0	0	0	
(0	0	0	0)		
18	0	0	0	0	
(0	0	0	0)		
19	530.8	.0270816	113.636	110.585	.0137643
(2654	1927	616	633)		
20	225.4	.0115	2692.31	2800	5.85714E-04
(1127	82	26	25)		
21	0	0	0	0	
(0	0	0	0)		
22	106.2	5.41837E-03	503.597	416.667	3.39286E-03
(531	475	139	168)		
23	212.6	.0108469	178.571	184.697	9.19286E-03
(1063	1287	392	379)		
24	0	0	0	0	
(0	0	0	0)		
25	0	0	0	0	
(0	0	0	0)		

```
                ********AVERAGE********
       NO.        NO./AREA          MFPV              MFPH          L/A
   250.864        .0127992        8.21754           153.253       .010332
SD 498.195        .0254181                                        .0222145
SE 99.6389        5.08362E-03                                     4.44291E-03
 26  6420.4   .327571             6.8473            7.75022       .270214
( 32102  37830  10223  9032 )
 27  0  0        0                0                 0
( 0  0  0  0 )
 28  0  0        0                0                 0
( 0  0  0  0 )
 29  0  0        0                0                 0
( 0  0  0  0 )
 30  0  0        0                0                 0
( 0  0  0  0 )
 31  0  0        0                0                 0
( 0  0  0  0 )
 32  0  0        0                0                 0
( 0  0  0  0 )
 33  1337.2  .0682245             33.8164           35.6053       .0443357
( 6686  6207  2070  1966 )
 34  65.6  3.34694E-03           660.377           619.469       2.35000E-03
( 328  329  106  113 )
 35  0  0        0                0                 0
( 0  0  0  0 )
 36  149.2  7.61225E-03          272.374           266.16        3.79286E-03
( 746  531  257  263 )
 37  0  0        0                0                 0
( 0  0  0  0 )
 38  67.6  3.44898E-03           424.242           429.448       3.75000E-03
( 338  525  165  163 )
 39  0  0        0                0                 0
( 0  0  0  0 )
 40  0  0        0                0                 0
( 0  0  0  0 )
 41  14.8  7.55102E-04           4375              5000          3.05000E-03
( 74  427  16  14 )
 42  522.6  .0266633             300.429           262.172       4.69286E-03
( 2613  657  233  267 )  FIELD OBLETED
 42  0  0        0                0                 0
( 0  0  0  0 )
 43  123.6  6.30612E-03          301.724           189.189       7.15714E-03
( 618  1002  232  370 )
 44  0  0        0                0                 0
( 0  0  0  0 )
 45  32.8  1.67347E-03           843.373           909.091       1.83571E-03
( 164  257  83  77 )
 46  222.2  .0113367             207.715           972.222       6.95714E-03
( 1111  974  337  72 )
 47  0  0        0                0                 0
( 0  0  0  0 )
 48  450  .0229592               75.431            152.505       8.69286E-03
( 2250  1217  928  459 )
 49  1903.2  .0971021            21.9505           19.337        .365457
( 9516  51164  3189  3620 )
 50  542.4  .0276735             29.6108           50.8721       .0518143
( 2712  7254  2364  1376 )
                ********AVERAGE********
       NO.        NO./AREA          MFPV              MFPH          L/A
   352.012        .0179598        15.026            120.923       .0205541
SD 988.01         .0504087                                        .0640826
SE 139.726        7.12887E-03                                     9.06265E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 13 6-791 SPEC D TWINS ONLY 6/24/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2836

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	100.529	2564.51	.0333333	.02	64.6429
(285100	18100	4200	7000)		
2	128.808	3285.92	.0254545	.012069	102.857
(365300	28800	5500	11600)		
3	122.638	3128.51	.0164706	8.64197E-03	146.071
(347800	40900	8500	16200)		
4	99.2595	2532.13	.0170732	7.60870E-03	156.786
(281500	43900	8200	18400)		
5	120.769	3080.83	.0202899	8.38323E-03	139.643
(342500	39100	6900	16700)		
6	122.532	3125.81	.0191781	8.86076E-03	135.357
(347500	37900	7300	15800)		
7	112.095	2859.55	.0191781	8.00000E-03	145.714
(317900	40800	7300	17500)		
8	100.212	2556.42	.0166667	7.14286E-03	163.929
(284200	45900	8400	19600)		
9	90.5501	2309.95	.0179487	7.90960E-03	148.571
(256800	41600	7800	17700)		
10	0	0	0	0	
(0	0	0	0)		
11	74.4006	1897.97	.028	.0110236	104.286
(211000	29200	5000	12700)		
12	92.1368	2350.43	.0166667	7.10660E-03	165.714
(261300	46400	8400	19700)		
13	104.513	2666.16	.0170732	7.56757E-03	160.357
(296400	44900	8200	18500)		
14	84.3794	2152.54	.016092	6.57277E-03	175.714
(239300	49200	8700	21300)		
15	78.5614	2004.12	.0194444	8.09248E-03	143.929
(222800	40300	7200	17300)		
16	65.9027	1681.19	.0222222	9.15033E-03	126.071
(186900	35300	6300	15300)		
17	46.9676	1198.15	.0269231	.0105263	109.286
(133200	30600	5200	13300)		
18	66.9252	1707.28	.0269231	9.72222E-03	116.071
(189800	32500	5200	14400)		
19	50.1058	1278.21	.0269231	9.92908E-03	113.571
(142100	31800	5200	14100)		
20	58.0042	1479.7	.028	.0107692	106.429
(164500	29800	5000	13000)		
21	30.8181	786.175	.0538461	.0197183	56.7857
(87400	15900	2600	7100)		
22	4.12553	105.243	.28	.107692	11.4286
(11700	3200	500	1300)		
23	0	0	0	0	
(0	0	0	0)		
24	0	0	0	0	
(0	0	0	0)		
25	61.213	1561.56	.0202899	.0112903	106.429
(173600	29800	6900	12400)		

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        ********AVERAGE********
      NO.      NO./AREA        MFPV            MFPH          L/A
   72.6178     1852.49        .0252708        .0109068      107.986
SD 40.0094     1020.65                                      54.0423
SE 8.00189     204.13                                       10.8085
 26  81.8406  2087.77         .0155556        8.53658E-03   139.286
( 232100  39000  9000  16400 )
 27  62.976  1606.53          .0159091        8.97436E-03   132.5
( 178600  37100  8800  15600 )
 28  82.2637  2098.57         .0162791        9.39597E-03   129.643
( 233300  36300  8600  14900 )
 29  75.4231  1924.06         .0147368        8.13953E-03   146.071
( 213900  40900  9500  17200 )
 30  75.1058  1915.96         .0168675        9.39597E-03   125.357
( 213000  35100  8300  14900 )
 31  92.1721  2351.33         .0142857        8.80503E-03   141.429
( 261400  39600  9800  15900 )
 32  91.4316  2332.44         .014            7.56757E-03   156.429
( 259300  43800  10000  18500 )
 33  95.3456  2432.28         .0121739        7.14286E-03   171.429
( 270400  48000  11500  19600 )
 34  116.361  2968.4          .0133333        8.23529E-03   152.5
( 330000  42700  10500  17000 )
 35  97.8491  2496.15         .0155556        8.86076E-03   137.5
( 277500  38500  9000  15800 )
 36  76.1989  1943.85         .0212121        .0127273      97.5
( 216100  27300  6600  11000 )
 37  72.5317  1850.3          .0197183        .0126126      101.429
( 205700  28400  7100  11100 )
 38  41.1495  1049.73         .04             .0229508      52.5
( 116700  14700  3500  6100 )
 39  70.8745  1808.02         .0341463        .0237288      56.7857
( 201000  15900  4100  5900 )
 40  1.83357  46.7747         .28             .35           5.35714
( 5200  1500  500  400 )
 41  0  0       0              0               0
( 0  0  0  0 )
 42  3.0677  78.2577          .233333         .155556       8.57143
( 8700  2400  600  900 )
 43  9.80254  250.065         .175            .2            9.28572
( 27800  2600  800  700 )
 44  97.4965  2487.16         .012963         7.40741E-03   164.643
( 276500  46100  10800  18900 )
 45  98.1664  2504.25         .0133333        7.82123E-03   157.143
( 278400  44000  10500  17900 )
 46  60.402  1540.87          .02             .0117647      105
( 171300  29400  7000  11900 )
 47  70.2398  1791.83         .0109375        .0109375      147.5
( 199200  41300  12800  12800 )
 48  2.433  62.0664           .28             .127273       9.64286
( 6900  2700  500  1100 )
 49  112.2  2862.25           .0197183        8.53658E-03   140.714
( 318200  39400  7100  16400 )
 50  146.721  3742.88         .0291667        .0141414      89.2857
( 416100  25000  4800  9900 )
        ********AVERAGE********
      NO.      NO./AREA        MFPV            MFPH          L/A
   70.9866     1810.88        .0225661        .0114435      105.543
SD 39.3592     1004.06                                      55.2849
SE 5.56623     141.996                                      7.81846
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C-2

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 13 JPL 6-791 SPEC D DISLOCATIONS ONLY 6/24/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	173.333	8.84354E-03	296.61	282.258	5.50000E-03
(1040	770	236	248)		
2	20.1667	1.02891E-03	1666.67	2258.06	1.00000E-03
(121	140	42	31)		
3	0	0	0	0	
(0	0	0	0)		
4	6.66667	3.40136E-04	7000	14000	1.92857E-04
(40	27	10	5)		
5	23	1.17347E-03	1296.3	897.436	1.30714E-03
(138	183	54	78)		
6	9.33333	4.76191E-04	5833.33	5000	2.92857E-04
(56	41	12	14)		
7	9.33333	4.76191E-04	3500	5384.61	4.28571E-04
(56	60	20	13)		
8	0	0	0	0	
(0	0	0	0)		
9	9.33333	4.76191E-04	4666.67	7777.78	3.57143E-04
(56	50	15	9)		
10	2091.83	.106726	18.7919	35.0175	.0691
(12551	9674	3725	1999)		
11	209.833	.0107058	179.949	309.734	7.50000E-03
(1259	1050	389	226)		
12	0	0	0	0	
(0	0	0	0)		
13	0	0	8750	23333.3	1.00000E-04
(0	14	8	3)		
13	23.6667	1.20748E-03	2258.06	2592.59	5.71429E-04
(142	80	31	27)		
14	23.8333	1.21599E-03	1296.3	2500	8.64286E-04
(143	121	54	28)		
15	28.6667	1.46259E-03	909.091	1400	1.56429E-03
(172	219	77	50)		
16	36.8333	1.87925E-03	823.529	1111.11	2.09286E-03
(221	293	85	63)		
17	51.5	2.62755E-03	769.231	760.87	2.15714E-03
(309	302	91	92)		
18	26.5	1.35204E-03	1842.11	2258.06	1.05714E-03
(159	148	38	31)		
19	35.3333	1.80272E-03	795.454	1346.15	1.55714E-03
(212	218	88	52)		
20	0	0	0	0	
(0	0	0	0)		
21	175.333	8.94558E-03	163.551	288.066	7.89286E-03
(1052	1105	428	243)		
22	610	.0311225	48.951	86.9565	.0263357
(3660	3687	1430	805)		
23	735	.0375	43.4513	78.9177	.0306786
(4410	4295	1611	887)		
24	148.5	7.57653E-03	231.023	451.613	5.92143E-03
(891	829	303	155)		
25	57	2.90816E-03	714.286	864.197	2.22143E-03
(342	311	98	81)		

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          ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   180.2       9.19388E-03   198.031       340.666       6.74371E-03
SD 429.677     .0219223                                  .0148063
SE 85.9354     4.38446E-03                               2.96126E-03
 26  29.6667  1.51361E-03    1428.57       1627.91       1.05714E-03
( 178  148  49  43 )
 27  15.6667  7.99320E-04    1458.33       1555.56       1.15000E-03
( 94  161  48  45 )
 28  0  0       0             0             0
( 0  0  0  0 )
 29  71.8333  3.66497E-03    380.435       700           3.22857E-03
( 431  452  184  100 )
 30  0  0       0             0             0
( 0  0  0  0 )
 31  19.3333  9.86395E-04    3888.89       1555.56       3.28571E-04
( 116  46  18  45 )
 32  12.6667  6.46259E-04    5384.61       2916.67       6.07143E-04
( 76  85  13  24 )
 33  0  0       0             0             0
( 0  0  0  0 )
 34  18.3333  9.35374E-04    1891.89       2500          8.35714E-04
( 110  117  37  28 )
 35  889.667  .0453912       65.9134       91.1458       .0214571
( 5338  3004  1062  768 )
 36  340.833  .0173895       132.827       202.899       .0104143
( 2045  1458  527  345 )
 37  380  .0193878           125.899       186.667       .0103143
( 2280  1444  556  375 )
 38  434.333  .0221599       119.454       196.629       .0114
( 2606  1596  586  356 )
 39  1584.17  .0808248       21.0653       43.6681       .0605214
( 9505  8473  3323  1603 )
 40  202.667  .0103401       150.538       214.067       9.40000E-03
( 1216  1316  465  327 )
 41  636.333  .032466        52.5525       81.3953       .0269643
( 3818  3775  1332  860 )
 42  300.167  .0153146       105.422       136.452       .0143643
( 1801  2011  664  513 )
 43  1.33333  6.80272E-05    23333.3       0             7.14286E-05
( 8  10  3  0 )
 44  0  0       0             0             0
( 0  0  0  0 )
 45  39.5  2.01531E-03       1296.3        1891.89       1.14286E-03
( 237  160  54  37 )
 46  125  6.37755E-03        366.492       460.526       4.05714E-03
( 750  568  191  152 )
 47  901.167  .0459779       41.1765       70.6357       .0321571
( 5407  4502  1700  991 )
 48  3.16667  1.61565E-04    11666.7       17500         0
( 19  0  6  4 )
 49  0  0       0             0             0
( 0  0  0  0 )
 50  0  0       0             0             0
( 0  0  0  0 )
          ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   210.217     .0107253      178.072       297.796       7.56129E-03
SD 408.428     .0208382                                  .0143629
SE 57.7604     2.94696E-03                               2.03122E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 14 JPL 6-791 SPEC E TWINS ONLY 6/24/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3500

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	7.62857	194.606	.233333	.0666667	17.5
(26700	4900	600	2100)		
2	3.45714	88.1924	.14	.0875	14.2857
(12100	4000	1000	1600)		
3	.485714	12.3907	1.4	.7	2.14286
(1700	600	100	200)		
4	3.17143	80.9038	.233333	.1	11.4286
(11100	3200	600	1400)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	.114286	2.91545	0	0	.357143
(400	100	0	0)		
8	.428571	10.9329	1.4	1.4	1.42857
(1500	400	100	100)		
9	3	76.5306	.14	.14	10.7143
(10500	3000	1000	1000)		
10	.542857	13.8484	1.4	.466667	2.85714
(1900	800	100	300)		
11	.314286	8.01749	1.4	1.4	1.42857
(1100	400	100	100)		
12	0	0	0	0	
(0	0	0	0)		
13	3.54286	90.379	.127273	.107692	13.9286
(12400	3900	1100	1300)		
14	1.94286	49.5627	.233333	.2	7.5
(6800	2100	600	700)		
15	0	0	0	0	
(0	0	0	0)		
16	.171429	4.37318	1.4	1.4	1.78571
(600	500	100	100)		
17	2.31429	59.0379	.7	.28	4.64286
(8100	1300	200	500)		
18	0	0	0	0	
(0	0	0	0)		
19	0	0	0	0	
(0	0	0	0)		
20	32.8857	838.922	.0368421	.025	51.0714
(115100	14300	3800	5600)		
21	101.257	2583.09	.014	9.03226E-03	137.143
(354400	38400	10000	15500)		
22	97.3429	2483.24	.0153846	.01	124.643
(340700	34900	9100	14000)		
23	82.1429	2095.48	.016092	9.79021E-03	122.857
(287500	34400	8700	14300)		
24	76.4571	1950.44	.0153846	9.65517E-03	126.786
(267600	35500	9100	14500)		
25	83.7143	2135.57	.014	8.91720E-03	137.857
(293000	38600	10000	15700)		

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        ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   20.0366      511.137        .062167       .0393258      31.6143
SD 34.9208      890.836                                    50.2739
SE 6.98415      178.167                                    10.0548
 26  24.4  622.449             .02           .0147368      90.3571
( 85400  25300  7000  9500 )
 27  44.0571  1123.91          .016092       9.52381E-03   124.643
( 154200  34900  8700  14700 )
 28  41.1429  1049.56          .0153846      9.33333E-03   128.929
( 144000  36100  9100  15000 )
 29  4.17143  106.414          .175          .1            12.5
( 14600  3500  800  1400 )
 30  3.42857  87.4636          .2            .116667       10.7143
( 12000  3000  700  1200 )
 31  6.37143  162.536          .0933333      .0518518      23.5714
( 22300  6600  1500  2700 )
 32  6.65714  169.825          .1            .0538461      22.1429
( 23300  6200  1400  2600 )
 33  5.48571  139.942          .0823529      .0466667      25.3571
( 19200  7100  1700  3000 )
 34  8.11429  206.997          .0666667      .0358974      32.5
( 28400  9100  2100  3900 )
 35  2.57143  65.5977          .28           .175          7.5
( 9000  2100  500  800 )
 36  0  0       0               0             0
( 0  0  0  0 )
 37  35  892.857                .0333333      .0116667      96.7857
( 122500  27100  4200  12000 )
 38  28.2571  720.846          .0285714      .0123894      96.0714
( 98900  26900  4900  11300 )
 39  33.0286  842.566          .0269231      .012963       94.2857
( 115600  26400  5200  10800 )
 40  47.2286  1204.81          .0222222      8.18713E-03   138.214
( 165300  38700  6300  17100 )
 41  55.6286  1419.1           .0229508      9.09091E-03   127.5
( 194700  35700  6100  15400 )
 42  63.2  1612.25             .0241379      9.33333E-03   125.357
( 221200  35100  5800  15000 )
 43  67.7143  1727.41          .0245614      8.33333E-03   135.714
( 237000  38000  5700  16800 )
 44  48.7429  1243.44          .0259259      9.27152E-03   122.857
( 170600  34400  5400  15100 )
 45  48.0571  1225.95          .0264151      8.91720E-03   126.071
( 168200  35300  5300  15700 )
 46  63.0571  1608.6           .0215385      7.25389E-03   155
( 220700  43400  6500  19300 )
 47  51.2857  1308.31          .0254545      8.86076E-03   128.214
( 179500  35900  5500  15800 )
 48  74.2571  1894.32          .021875       9.33333E-03   128.214
( 259900  35900  6400  15000 )
 49  91.0571  2322.89          .0194444      9.85915E-03   127.857
( 318700  35800  7200  14200 )
        ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   27.6292      704.826        .0417529      .020338       58.586
SD 31.8414      812.281                                    57.9588
SE 4.54877      116.04                                     8.27983
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 14 JPL 6-791 SPEC E DISLOCATIONS ONLY 6/24/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.9

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	2003.73	.102231	19.2625	35.2113	.0676143
(11822	9466	3634	1988)		
2	1282.37	.0654272	33.8655	56.4061	.03915
(7566	5481	2067	1241)		
3	329.492	.0168108	101.597	168.269	.0136214
(1944	1907	689	416)		
4	441.695	.0225355	77.0925	128.676	.0180357
(2606	2525	908	544)		
5	178.305	9.09720E-03	169.903	269.231	7.93571E-03
(1052	1111	412	260)		
6	335.932	.0171394	114.754	174.129	.0120214
(1982	1683	610	402)		
7	1377.97	.0703044	28.3286	46.4499	.0476786
(8130	6675	2471	1507)		
8	776.78	.0396316	48.0769	85.3658	.0269714
(4583	3776	1456	820)		
9	700.17	.0357229	52.161	87.2818	.0257143
(4131	3600	1342	802)		
10	565.254	.0288395	61.8921	98.4529	.0221429
(3335	3100	1131	711)		
11	271.695	.013862	135.397	201.729	9.99286E-03
(1603	1399	517	347)		
12	142.034	7.24663E-03	304.348	416.667	4.36429E-03
(838	611	230	168)		
13	2308.98	.117805	18.4211	30.9734	.0728286
(13623	10196	3800	2260)		
14	1240.68	.0632999	30.0816	52.9902	.0444357
(7320	6221	2327	1321)		
15	980.678	.0500346	34.9301	60.0858	.03765
(5786	5271	2004	1165)		
16	1881.7	.0960049	20.1265	35.8056	.066
(11102	9240	3478	1955)		

********AVERAGE********

	NO.	NO./AREA	MFPV	MFPH	L/A
	926.091	.0472496	41.365	70.4092	.0322598
SD	669.165	.0341411			.0216431
SE	167.291	8.53527E-03			5.41078E-03
17	236.102	.012046	155.211	218.069	9.70000E-03
(1393	1358	451	321)		
18	276.78	.0141214	119.658	186.17	.0112429
(1633	1574	585	376)		
19	658.814	.0336129	73.6842	103.093	.0195143
(3887	2732	950	679)		
20	76.9492	3.92598E-03	492.958	985.915	2.70000E-03
(454	378	142	71)		
21	82.2034	4.19405E-03	583.333	1076.92	2.36429E-03
(485	331	120	65)		
22	33.8983	1.72951E-03	972.222	1891.89	1.40714E-03
(200	197	72	37)		
23	303.39	.0154791	102.941	182.768	.0129286
(1790	1810	680	383)		
24	287.288	.0146576	115.702	228.758	.0109071
(1695	1527	605	306)		

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 25  244.407   .0124697        170.732         263.158         8.41429E-03
( 1442  1178  410  266 )
 26  106.61  5.43930E-03       290.456         496.454         4.70000E-03
( 629  658  241  141 )
 27  1445.42   .0737461        31.2919         41.9162         .0449714
( 8528  6296  2237  1670 )
 28  60.5085  3.08717E-03      642.202         1320.75         1.86429E-03
( 357  261  109  53 )
 29  330.678   .0168713        108.865         217.391         .0112286
( 1951  1572  643  322 )
 30  110.678  5.64684E-03      275.591         514.706         4.67143E-03
( 653  654  254  136 )
 31  147.288  7.51470E-03      210.21          366.492         6.56429E-03
( 869  919  333  191 )
 32  1464.41   .0747146        26.2074         43.7227         .0469429
( 8640  6572  2671  1601 )
 33  121.695  6.20893E-03      277.778         469.799         4.72857E-03
( 718  662  252  149 )
 34  65.0847  3.32065E-03      813.953         1296.3          1.82143E-03
( 384  255  86  54 )
 35  67.6271  3.45036E-03      630.631         1129.03         2.27143E-03
( 399  318  111  62 )
 36  96.2712  4.91180E-03      295.359         530.303         4.45714E-03
( 568  624  237  132 )
 37  317.627   .0162055        123.023         228.758         .0107357
( 1874  1503  569  306 )
 38  192.712  9.83224E-03      210.21          262.172         7.10000E-03
( 1137  994  333  267 )
 39  790.678   .0403407        48.3092         72.9927         .0281071
( 4665  3935  1449  959 )
 40  71.8644  3.66655E-03      534.351         864.197         2.50714E-03
( 424  351  131  81 )
 41  19.1525  9.77171E-04      2800            1750            8.71429E-04
( 113  122  25  40 )
 42  834.237   .0425631        46.5425         82.7423         .0314571
( 4922  4404  1504  846 )
 43  134.746  6.87479E-03      262.172         285.714         6.72857E-03
( 795  942  267  245 )
 44  0  0       0               0               0
( 0  0  0  0 )
 45  37.2881  1.90246E-03      972.222         714.286         2.48571E-03
( 220  348  72  98 )
 46  0  0       0               0               0
( 0  0  0  0 )
 47  18.4746  9.42581E-04      2333.33         1794.87         9.07143E-04
( 109  127  30  39 )
 48  0  0       35000           2187.5          1.14286E-04
( 0  16  2  32 )
 49  0  0       0               0               0
( 0  0  0  0 )
 50  0  0       0               0               0
( 0  0  0  0 )
              ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH            L/A
   469.007      .0239289        82.0691         135.475         .0164114
SD 576.411      .0294087                                        .0190526
SE 81.5169      4.15902E-03                                     2.69445E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 15JPL 6-791SPEC FTWINS ONLY 6/24/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2350

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	15.4468	394.051	.116667	.0424242	25.7143
(36300	7200	1200	3300)		
2	14.8085	377.768	.127273	.0482759	23.9286
(34800	6700	1100	2900)		
3	14.9787	382.11	.07	.0451613	30
(35200	8400	2000	3100)		
4	0	0	0	0	
(0	0	0	0)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	0	0	0	0	
(0	0	0	0)		
11	3.70213	94.442	.466667	.116667	9.64286
(8700	2700	300	1200)		
12	1.44681	36.9084	.35	.35	5.35714
(3400	1500	400	400)		
13	4	102.041	.14	.14	13.2143
(9400	3700	1000	1000)		
14	.595745	15.1976	.7	1.4	2.5
(1400	700	200	100)		
15	1.2766	32.5662	.35	.233333	6.78572
(3000	1900	400	600)		
16	1.74468	44.5072	.466667	.28	5.71429
(4100	1600	300	500)		
17	0	0	0	0	
(0	0	0	0)		
********AVERAGE********					
	NO.	NO./AREA	MFPV	MFPH	L/A
	3.41176	87.0349	.344927	.181679	7.22689
SD	5.53706	141.252			9.78347
SE	1.34293	34.2585			2.37284
18	0	0	0	0	
(0	0	0	0)		
19	0	0	0	0	
(0	0	0	0)		
20	185.106	4722.1	6.03448E-03	.0166667	202.5
(435000	56700	23200	8400)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	0	0	0	0	
(0	0	0	0)		

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 24  3.2766  83.5866          .28             .107692         12.5
( 7700  3500  500  1300 )
 25  3.82979  97.6987         .7              .14             8.21429
( 9000  2300  200  1000 )
 26  .93617  23.8819          0               .7              1.42857
( 2200  400  0  200 )
            ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH            L/A
   9.65957      246.418         .118182         .151667         13.3654
SD 35.4009      903.083                                         38.7807
SE 6.94268      177.109                                         7.60553
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 15 JPL 6-791 SPEC F DISLOCATIONS ONLY 6/24/79

OPERATOR IS TIM,HAYAT MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6.1

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	25.082	1.27969E-03	886.076	1206.9	1.54286E-03
(153	216	79	58)		
2	268.525	.0137002	136.719	206.49	.0101714
(1638	1424	512	339)		
3	310.984	.0158665	122.592	178.571	.0108
(1897	1512	571	392)		
4	361.311	.0184343	92.7152	150.538	.0144286
(2204	2020	755	465)		
5	402.951	.0205587	74.8663	143.443	.0173357
(2458	2427	935	488)		
6	462.459	.0235949	67.8952	117.45	.0193
(2821	2702	1031	596)		
7	277.705	.0141686	115.321	207.101	.0117286
(1694	1642	607	338)		
8	320.656	.01636	120.275	189.189	.0113143
(1956	1584	582	370)		
9	38.3607	1.95718E-03	714.286	1400	1.85714E-03
(234	260	98	50)		
10	68.1967	3.47943E-03	409.357	744.681	3.48571E-03
(416	488	171	94)		
11	78.5246	4.00636E-03	406.977	507.246	3.55714E-03
(479	498	172	138)		
12	35.4098	1.80662E-03	1060.61	1891.89	1.40000E-03
(216	196	66	37)		
		********AVERAGE********			
	NO.	NO./AREA	MFPV	MFPH	L/A
	220.847	.0112677	150.565	249.629	8.91012E-03
SD	153.956	7.85492E-03			6.10178E-03
SE	44.4434	2.26752E-03			1.76143E-03
13	156.066	7.96253E-03	191.257	348.259	6.66429E-03
(952	933	366	201)		
14	33.2787	1.69789E-03	945.946	1891.89	1.58571E-03
(203	222	74	37)		
15	19.6721	1.00368E-03	1186.44	3043.48	1.04286E-03
(120	146	59	23)		
16	26.8852	1.37170E-03	1250	1627.91	1.12143E-03
(164	157	56	43)		
17	83.6066	4.26564E-03	318.182	598.291	3.93571E-03
(510	551	220	117)		
18	40	2.04082E-03	560	1272.73	2.27143E-03
(244	318	125	55)		
19	121.475	6.19773E-03	271.318	460.526	5.12143E-03
(741	717	258	152)		
20	209.836	.0107059	142.276	288.066	9.07143E-03
(1280	1270	492	243)		
21	211.475	.0107896	131.827	251.799	.0101714
(1290	1424	531	278)		
22	32.2951	1.64771E-03	693.069	1428.57	1.67143E-03
(197	234	101	49)		

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 23   16.2295   8.28036E-04     1627.91         2592.59         9.92857E-04
( 99   139   43   27 )
 24   22.2951   1.13750E-03     1400            2916.67         9.07143E-04
( 136   127   50   24 )
 25   39.8361   2.03245E-03     752.688         1555.56         1.71429E-03
( 243   240   93   45 )
 26   14.4262   7.36032E-04     1590.91         3684.21         9.00000E-04
( 88   126   44   19 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH          L/A
    141.444      7.21653E-03    224.941         389.055         5.92665E-03
SD  137.536      7.01713E-03                                    5.46478E-03
SE  26.973       1.37617E-03                                    1.07173E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 16 JPL 6-792 SPEC A TWINS ONLY 6/25/79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2667

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	4.08699	104.26	.175	.155556	10
(10900	2800	800	900)		
1	1.76228	44.9561	.35	.233333	5.35714
(4700	1500	400	600)		
2	1.6123	41.1301	.35	.233333	6.07143
(4300	1700	400	600)		
3	0	0	0	0	
(0	0	0	0)		
4	0	0	0	0	
(0	0	0	0)		
5	0	0	0	0	
(0	0	0	0)		
6	.599925	15.3042	.7	.7	2.5
(1600	700	200	200)		
7	4.012	102.347	.2	.35	6.78572
(10700	1900	700	400)		
8	0	0	0	0	
(0	0	0	0)		
9	6.3742	162.607	.0823529	.0875	18.5714
(17000	5200	1700	1600)		
10	20.7349	528.952	.04	.0254545	49.6429
(55300	13900	3500	5500)		
11	11.3611	289.824	.056	.04	32.1429
(30300	9000	2500	3500)		
12	2.51219	64.0864	.2	.233333	7.5
(6700	2100	700	600)		
13	0	0	0	0	
(0	0	0	0)		
14	13.4983	344.345	.0466667	.0636364	268.214
(36000	75100	3000	2200)		
15	3.11211	79.3906	.175	.2	8.92857
(8300	2500	800	700)		
16	2.73716	69.8255	.233333	.155556	8.57143
(7300	2400	600	900)		
17	0	0	0	0	
(0	0	0	0)		
18	12.8609	328.084	.05	.0368421	38.2143
(34300	10700	2800	3800)		
19	5.96175	152.086	.127273	.0666667	17.5
(15900	4900	1100	2100)		
20	12.4484	317.562	.0608696	.0368421	33.9286
(33200	9500	2300	3800)		
21	17.9977	459.126	1.36799E-04	.035	40.7143
(48000	11400	1.02340E+06	4000)		
22	3.78703	96.6078	.175	.116667	11.0714
(10100	3100	800	1200)		
23	8.43645	215.215	.0823529	.04375	26.7857
(22500	7500	1700	3200)		
24	14.4357	368.258	.1	.0666667	19.6429
(38500	5500	1400	2100)		
25	44.4694	1134.42	.0304348	.0259259	56.0714

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( 118600  15700  4600  5400 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   7.54856      192.565       3.32510E-03    .0825472       26.3286
SD 9.7041       247.554                                     52.0477
SE 1.94082      49.5107                                     10.4095
 26  45.7818  1167.9           .016092        .0175          91.7857
( 122100  25700  8700  8000 )
 27  22.9846  586.343          .0172839       .0285714       75
( 61300  21000  8100  4900 )
 28  8.024  204.694            .0518518       .0823529       27.8571
( 21400  7800  2700  1700 )
 29  28.159  718.341           .0186667       .0285714       71.4286
( 75100  20000  7500  4900 )
 30  0  0       0               0              0
( 0  0  0  0 )
 31  9.37383  239.128          .0378378       .1             24.6429
( 25000  6900  3700  1400 )
 32  1.6123  41.1301           .14            .28            9.64286
( 4300  2700  1000  500 )
 33  59.1676  1509.38          .0225806       .0132075       93.5714
( 157800  26200  6200  10600 )
 34  106.637  2720.32          .0162791       .010219        125.357
( 284400  35100  8600  13700 )
 35  84.7394  2161.72          .0166667       .0116667       116.786
( 226000  32700  8400  12000 )
 36  98.2377  2506.06          .0225806       .0132075       94.6429
( 262000  26500  6200  10600 )
 37  94.5257  2411.37          .0168675       .0101449       124.643
( 252100  34900  8300  13800 )
 38  81.1024  2068.94          .016092        .0104478       123.214
( 216300  34500  8700  13400 )
 39  133.708  3410.93          .0135922       .0269231       94.2857
( 356600  26400  10300  5200 )
 40  96.6629  2465.89          .0186667       .0113821       113.214
( 257800  31700  7500  12300 )
 41  83.6145  2133.02          .0225806       .0126126       98.2143
( 223000  27500  6200  11100 )
 42  63.8545  1628.94          .0191781       .0114754       110
( 170300  30800  7300  12200 )
 43  24.2595  618.864          .0311111       .0166667       68.9286
( 64700  19300  4500  8400 )
 44  61.4173  1566.77          .0212121       .0115702       104.643
( 163800  29300  6600  12100 )
 45  51.6685  1318.08          .0229508       .0133333       92.1429
( 137800  25800  6100  10500 )
 46  30.0712  767.124          .0297872       .0175          71.7857
( 80200  20100  4700  8000 )
 47  64.9419  1656.68          .0189189       .0111111       111.429
( 173200  31200  7400  12600 )
 48  61.0799  1558.16          .0191781       .0114754       109.286
( 162900  30600  7300  12200 )
 49  30.6712  782.428          .0297872       .0175          71.4286
( 81800  20000  4700  8000 )
 50  74.9156  1911.11          .0229508       .0133333       93.9286
( 199800  26300  6100  10500 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   32.1185      819.349       5.78799E-03    .0268199       55.5214
SD 35.6969      910.636                                     52.9937
SE 5.0483       128.783                                     7.49444
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 16 JPL 6-792 SPEC A DISLOCATIONS ONLY 6/25/79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6.8

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
	137.05°	6.99280E-03	74.7863	73.7618	6.65714E-03
(932	932	936	949)	FIELD DELETED	
1	255.294	.0130252	42.6309	38.8673	.0121857
(1736	1706	1642	1801)		
2	277.206	.0141432	35.1406	34.6021	.0138643
(1885	1941	1992	2023)		
3	1279.71	.0652911	8.18044	7.83524	.0627857
(8702	8790	8557	8934)		
4	3687.5	.188138	2.77998	2.6824	.175279
(25075	24539	25180	26096)		
5	306.618	.0156438	36.0082	34.2466	.0146857
(2085	2056	1944	2044)		
6	400.735	.0204457	24.527	24.1963	.0199143
(2725	2788	2854	2893)		
7	2678.09	.136637	3.78297	3.90429	.129514
(18211	18132	18504	17929)		
8	2757.94	.140711	3.78011	3.78911	.138471
(18754	19386	18518	18474)		
9	806.471	.0411465	12.672	12.8182	.03745
(5484	5243	5524	5461)		
10	743.971	.0379577	13.2125	12.9894	.0387786
(5059	5429	5298	5389)		
11	2875.44	.146706	3.50438	3.45083	.142293
(19553	19921	19975	20285)		
12	200.588	.0102341	52.3169	50.2513	9.47143E-03
(1364	1326	1338	1393)		
13	1049.26	.0535339	10.0459	9.85499	.0485786
(7135	6801	6968	7103)		
14	296.176	.015111	34.2298	34.2298	.01455
(2014	2037	2045	2045)		
15	799.853	.0408088	13.4331	13.6665	.0386071
(5439	5405	5211	5122)		
16	251.471	.0128301	39.5704	40.1146	.01255
(1710	1757	1769	1745)		
17	164.706	8.40336E-03	58.382	64.4567	8.22143E-03
(1120	1151	1199	1086)		
18	142.647	7.27791E-03	73.6067	73.5294	5.97857E-03
(970	837	951	952)		
19	81.3235	4.14916E-03	124.113	121.317	4.17857E-03
(553	585	564	577)		
20	153.676	7.84064E-03	66.7302	63.4633	7.75000E-03
(1045	1085	1049	1103)		
21	273.676	.0139631	35.461	34.8953	.0135
(1861	1890	1974	2006)		
22	6.47059	3.30132E-04	1206.9	1228.07	4.00000E-04
(44	56	58	57)		
23	195.588	9.97899E-03	51.8518	54.4747	.0105143
(1330	1472	1350	1285)		

```
 24   133.824   6.82773E-03     60.5536         71.7949         7.48571E-03
( 910   1048   1156   975 )
 25   194.265   9.91147E-03     50.8721         53.313          9.17143E-03
( 1321   1284   1376   1313 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH            L/A
    800.5         .0408418        12.7741         12.6728         .0390471
SD 1020.6         .0520717                                        .0496088
SE 204.121        .0104143                                        9.92175E-03
 26   1077.65   .054982         9.62199         9.74659         .0503714
( 7328   7052   7275   7182 )
 27   6612.21   .337358         1.63049         1.54878         .3069
( 44963   42966   42932   45197 )
 28   1373.53   .070078         7.86605         7.20313         .06385
( 9340   8939   8899   9718 )
 29   3150.44   .160737         2.74671         2.66058         .177064
( 21423   24789   25485   26310 )
 30   4152.5   .211862          2.35207         2.57362         .197679
( 28237   27675   29761   27199 )
 31   89.8529   4.58433E-03     1129.03         155.556         3.17857E-03
( 611   445   62   450 )
 32   60.8824   3.10624E-03     171.99          163.934         2.79286E-03
( 414   391   407   427 )
 33   16.6176   8.47839E-04     679.612         700             1.40714E-03
( 113   197   103   100 )
 34   773.971   .0394883        13.0015         12.5471         .0376214
( 5263   5267   5384   5579 )
 35   0   0        0              0               0
( 0   0   0   0 )
 36   0   0        0              0               0
( 0   0   0   0 )
 37   .588235   3.00120E-05     17500           17500           2.14286E-05
( 4   3   4   4 )
 38   0   0        0              0               0
( 0   0   0   0 )
 39   0   0        0              0               0
( 0   0   0   0 )
 40   1.32353   6.75270E-05     7000            5384.61         6.42857E-05
( 9   9   10   13 )
 41   .441177   2.25090E-05     0               0               2.14286E-05
( 3   3   0   0 )
 42   22.2059   1.13295E-03     434.783         514.706         1.26429E-03
( 151   177   161   136 )
 43   0   0        0              23333.3         0
( 0   0   0   3 )
 44   85.8824   4.38175E-03     114.943         114.192         4.59286E-03
( 584   643   609   613 )
 45   1122.79   .0572854        8.8239          9.13599         .0557571
( 7635   7806   7933   7662 )
 46   .441177   2.25090E-05     11666.7         0               0
( 3   0   6   0 )
 47   0   0        0              0               0
( 0   0   0   0 )
 48   12.7941   6.52761E-04     897.436         909.091         6.14286E-04
( 87   86   78   77 )
 49   6.32353   3.22629E-04     188.172         191.781         2.67143E-03
( 43   374   372   365 )
 50   .441177   2.25090E-05     14000           0               2.14286E-05
( 3   3   5   0 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH            L/A
   771.468        .0393606        13.1341         13.0051         .0376414
SD 1327.56        .0677325                                        .0639693
SE 187.745        9.57882E-03                                     9.04662E-03
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 17 JPL 6-792 SPEC B TWINS ONLY 6-25-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2242

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	.223015	5.68916	0	0	.357143
(500	100	0	0)		
2	1.96253	50.0646	.7	.35	3.92857
(4400	1100	200	400)		
3	2.54237	64.8565	.466667	.175	7.14286
(5700	2000	300	800)	FIELD DELETED	
3	24.2641	618.981	.0358974	.0269231	51.7857
(54400	14500	3900	5200)		
4	10.9277	278.769	.0378378	.07	32.5
(24500	9100	3700	2000)		
5	1.4719	37.5485	.28	.466667	4.28571
(3300	1200	500	300)		
6	4.01427	102.405	.116667	.233333	10.7143
(9000	3000	1200	600)		
7	19.8037	505.198	.0304348	.0518518	43.5714
(44400	12200	4600	2700)		
8	36.3515	927.334	.028	.0229508	60
(81500	16800	5000	6100)		
9	7.85013	200.259	.1	.07	18.9286
(17600	5300	1400	2000)		
10	2.72078	69.4078	.233333	.2	7.14286
(6100	2000	600	700)		
11	.579839	14.7918	.7	.7	2.14286
(1300	600	200	200)		
12	0	0	0	0	
(0	0	0	0)		
13	20.562	524.541	.0184211	.0341463	65.3571
(46100	18300	7600	4100)		
14	13.8269	352.728	.028	.0466667	43.9286
(31000	12300	5000	3000)		
15	45.4505	1159.45	.0142857	.0212121	94.6429
(101900	26500	9800	6600)		
16	17.7966	453.995	.0341463	.0304348	46.7857
(39900	13100	4100	4600)		
17	68.9563	1759.09	9.79021E-03	8.33333E-03	163.929
(154600	45900	14300	16800)		
18	88.8938	2267.7	9.58904E-03	8.91720E-03	163.571
(199300	45800	14600	15700)		
19	108.787	2775.17	7.44681E-03	6.93069E-03	210.714
(243900	59000	18800	20200)		
20	96.6548	2465.68	6.92041E-04	7.69231E-03	191.071
(216700	53500	202300	18200)		
21	68.8225	1755.68	9.85915E-03	9.03226E-03	157.857
(154300	44200	14200	15500)		
22	104.906	2676.18	.0110236	7.77778E-03	242.143
(235200	67800	12700	18000)		
23	72.8368	1858.08	.0145833	.0107692	127.143
(163300	35600	9600	13000)		
24	69.3577	1769.33	.0189189	.0141414	96.0714
(155500	26900	7400	9900)		

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 25  107.092  2731.94          9.52381E-03   8.00000E-03   181.071
( 240100  50700  14700  17500 )
            ********AVERAGE********
       NO.       NO./AREA        MFPV           MFPH          L/A
   39.7645       1014.4         9.82042E-03   .0190944      80.7857
SD 38.5432       983.245                                    74.9024
SE 7.70864       196.649                                    14.9805
 26  81.0437  2067.44           .0147368      .0105263      127.857
( 181700  35800  9500  13300 )
 27  67.3952  1719.27           .0189189      .0115702      108.929
( 151100  30500  7400  12100 )
 28  80.1516  2044.69           .0170732      .0123894      111.429
( 179700  31200  8200  11300 )
 29  92.7297  2365.55           .0181818      .0125         106.786
( 207900  29900  7700  11200 )
 30  63.5593  1621.41           .0172839      .0111111      114.286
( 142500  32000  8100  12600 )
 31  34.9688  892.061           .0254545      .0170732      77.8571
( 78400  21800  5500  8200 )
 32  32.8278  837.445           .0297872      .0194444      66.0714
( 73600  18500  4700  7200 )
 33  47.9037  1222.03           .0291667      .0191781      68.9286
( 107400  19300  4800  7300 )
 34  38.537  983.087            .0245614      .0152174      83.2143
( 86400  23300  5700  9200 )
 35  36.7083  936.436           .0269231      .0215385      66.4286
( 82300  18600  5200  6500 )
 36  53.8805  1374.5            .0194444      .0170732      86.0714
( 120800  24100  7200  8200 )
 37  54.0143  1377.92           .0259259      .0177215      74.2857
( 121100  20800  5400  7900 )
 38  82.2034  2097.03           .0137255      .0115702      125.357
( 184300  35100  10200  12100 )
 39  60.8831  1553.14           .0215385      .012844       96.7857
( 136500  27100  6500  10900 )
 40  33.9429  865.891           .0269231      .0202899      77.1429
( 76100  21600  5200  6900 )
 41  40.5888  1035.43           .0181818      .0241379      77.1429
( 91000  21600  7700  5800 )
 42  23.9518  611.016           .056          .0358974      36.0714
( 53700  10100  2500  3900 )
 43  5.04014  128.575           .175          .0875         13.5714
( 11300  3800  800  1600 )
 44  27.1186  691.802           .0333333      .0197183      62.5
( 60800  17500  4200  7100 )
 45  22.3015  568.916           .0538461      .0325581      41.0714
( 50000  11500  2600  4300 )
 46  13.5593  345.901           .0538461      .0451613      33.2143
( 30400  9300  2600  3100 )
 47  6.02141  153.607           .1            .0736842      17.1429
( 13500  4800  1400  1900 )
 48  0  0       0                0             0
( 0  0  0  0 )
 49  .133809  3.4135           0             0             .357143
( 300  100  0  0 )
 50  1.5165  38.6863           .7            .35           5
( 3400  1400  200  400 )
            ********AVERAGE********
       NO.       NO./AREA        MFPV           MFPH          L/A
   39.9019       1017.91        .0145925      .0196464      73.9429
SD 33.407        852.22                                     60.0101
SE 4.72446       120.522                                    8.48671
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 17 JPL 6-792 SPEC B DISLOCATIONS ONLY 6/25/79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 10.1

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	977.426	.0498687	28.0336	53.8876	.0340429
(9872	4766	2497	1299)		
2	1906.44	.0972672	14.2363	26.2763	.09085
(19255	12719	4917	2664)		
3	545.545	.0278339	45.1613	67.7638	.0342571
(5510	4796	1550	1033)		
4	396.535	.0202314	52.4738	90.9091	.02525
(4005	3535	1334	770)		
5	69.802	3.56133E-03	1627.91	2333.33	1.22143E-03
(705	171	43	30)		
6	36.9307	1.88422E-03	492.958	897.436	2.47857E-03
(373	347	142	78)		
7	4.25743	2.17216E-04	1372.55	3888.89	5.71429E-04
(43	80	51	18)		
8	0	0	0	0	
(0	0	0	0)		
9	137.624	7.02162E-03	142.276	291.667	9.05000E-03
(1390	1267	492	240)		
10	.792079	4.04122E-05	17500	17500	1.00000E-04
(8	14	4	4)		
11	33.2673	1.69731E-03	673.077	1250	1.84286E-03
(336	258	104	56)		
12	263.465	.0134421	76.3359	131.086	.0178071
(2661	2493	917	534)		
13	5.34653	2.72782E-04	2058.82	5384.61	4.42857E-04
(54	62	34	13)		
14	11.7822	6.01132E-04	1627.91	1489.36	8.71429E-04
(119	122	43	47)		
15	30	1.53061E-03	522.388	569.106	2.90714E-03
(303	407	134	123)		
16	2.87129	1.46494E-04	3333.33	5833.33	4.50000E-04
(29	63	21	12)		
17	0	0	0	14000	5.71429E-05
(0	8	0	5)		
18	0	0	0	0	
(0	0	0	0)		
19	312.178	.0159275	67.1141	127.042	.0199786
(3153	2797	1043	551)		
20	0	0	0	0	
(0	0	0	0)		
21	.693069	3.53607E-05	7000	70000	7.85714E-05
(7	11	10	1)		
22	1.38614	7.07214E-05	3181.82	17500	4.28571E-04
(14	60	22	4)		
23	0	0	0	0	
(0	0	0	0)		
24	0	0	0	0	
(0	0	0	0)		
25	79.2079	4.04122E-03	247.35	414.201	5.06429E-03
(800	709	283	169)		

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                ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH          L/A
    192.622       9.82764E-03     128.29          228.728       9.91000E-03
SD  415.58        .021203                                       .0196097
SE  83.1159       4.24061E-03                                   3.92194E-03
 26   0   0       0               0               0
( 0   0   0   0 )
 27   0   0       0               0               0
( 0   0   0   0 )
 28   0   0       0               0               0
( 0   0   0   0 ),
 29   0   0       0               0               0
( 0   0   0   0 )
 30   0   0       0               0               0
( 0   0   0   0 )
 31   52.3762   2.67226E-03       343.137         729.167       6.96429E-03
( 529   975   204   96 )
 32   17.2277   8.78966E-04       897.436         2413.79       1.47143E-03
( 174   206   78   29 )
 33   88.9109   4.53627E-03       115.894         454.545       6.62143E-03
( 898   927   604   154 )
 34   455.644   .0232471          44.8143         85.1581       .0304929
( 4602   4269   1562   822 )
 35   199.901   .010199           84.7458         171.569       .0149643
( 2019   2095   826   408 )
 36   784.357   .0400182          17.8799         46.2963       .0677929
( 7922   9491   3915   1512 )
 37   689.109   .0351586          20.1729         53.6398       .0576357
( 6960   8069   3470   1305 )
 38   2523.47   .128748           10.5058         19.0269       .121536
( 25487   17015   6663   3679 )
 39   2037.33   .103945           13.7904         24.0385       .0889929
( 20577   12459   5076   2912 )
 40   3929.31   .200475           7.96088         15.9344       .159421
( 39686   22319   8793   4393 )
 41   1327.23   .0677157          17.8891         33.4448       .0701857
( 13405   9826   3913   2093 )
 42   224.554   .0114569          61.3497         159.817       .0215857
( 2268   3022   1141   438 )
                ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH          L/A
    408.213       .0208272        58.9344         115.33        .0213194
SD  807.186       .0411829                                      .0363982
SE  124.551       6.35467E-03                                   5.61637E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 18 JPL 6-792 SPEC C TWINS ONLY 6/27/79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2977

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	0	0	0	0	
(0 | 0 | 0 | 0)				
2	0	0	0	0	
(0 | 0 | 0 | 0)				
3	0	0	0	0	
(0 | 0 | 0 | 0) FIELD DELETED				
3	.705408	17.9951	1.4	.7	2.5
(2100 | 700 | 100 | 200)				
4	0	0	0	0	
(0 | 0 | 0 | 0)				
5	1.31004	33.4195	.7	0	1.78571
(3900 | 500 | 200 | 0)				
6	0	0	0	0	
(0 | 0 | 0 | 0) FIELD DELETED				
6	5.07222	129.393	.155556	.0736842	16.0714
(15100 | -4500 | 900 | 1900)				
7	.40309	10.2829	1.4	1.4	1.07143
(1200 | 300 | 100 | 100)				
8	0	0	0	0	
(0 | 0 | 0 | 0)				
9	4.26604	108.828	.107692	.1	15.3571
(12700 | 4300 | 1300 | 1400)				
10	0	0	.14	0	0
(0 | 0 | 1000 | 0)				
11	.0335909	.85691	0	0	0
(100 | 0 | 0 | 0)				
12	.201545	5.14146	0	0	.357143
(600 | 100 | 0 | 0)				
13	14.4105	367.614	.0225806	.04375	53.5714
(42900 | 15000 | 6200 | 3200)				
14	15.7541	401.891	.0451613	.0325581	40.7143
(46900 | 11400 | 3100 | 4300)				
15	40.3762	1030.01	.0318182	.0189189	67.1429
(120200 | 18800 | 4400 | 7400)				
16	40.0739	1022.29	.0254545	.0147368	83.9286
(119300 | 23500 | 5500 | 9500)				
17	49.6809	1267.37	.0172839	.0119658	108.929
(147900 | 30500 | 8100 | 11700)				
18	70.1377	1789.23	.0197183	.0141414	93.9286
(208800 | 26300 | 7100 | 9900)				
19	79.2408	2021.45	.0205882	.0134615	96.0714
(235900 | 26900 | 6800 | 10400)				
20	19.4491	496.151	.04375	.0304348	43.9286
(57900 | 12300 | 3200 | 4600)				
21	45.5492	1161.97	.0269231	.016092	79.2857
(135600 | 22200 | 5200 | 8700)				
22	59.4558	1516.73	.0222222	.014	92.1429
(177000 | 25800 | 6300 | 10000)				
23	58.2801	1486.74	.0254545	.0170732	75.3571
(173500 | 21100 | 5500 | 8200)				
24	92.5092	2359.93	.014433	.0150538	107.143
(275400 | 30000 | 9700 | 9300)				

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 25  75.3443  1922.05          .014            .014            115.714
( 224300  32400  10000  10000 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH            L/A
    26.8902       685.974        .0413223        .0315884        43.8
SD  30.2967       772.875                                        42.7998
SE  6.05934       154.575                                        8.55997
 26  37.3195  952.027          .0212121        .0229508        72.1429
( 111100  20200  6600  6100 )
 27  50.6214  1291.36          .0189189        .0186667        84.2857
( 150700  23600  7400  7500 )
 28  61.8408  1577.57          .0202899        .0184211        80.3572
( 184100  22500  6900  7600 )
 29  67.081  1711.25           .0177215        .0142857        98.9286
( 199700  27700  7900  9800 )
 30  77.0574  1965.75          .0222222        .021875         73.2143
( 229400  20500  6300  6400 )
 31  61.1018  1558.72          .0157303        .0205882        91.0714
( 181900  25500  8900  6800 )
 32  71.8844  1833.79          .0175           .0179487        89.2857
( 214000  25000  8000  7800 )
 33  77.091  1966.61           .0259259        .0197183        72.1429
( 229500  20200  5400  7100 )
 34  48.3373  1233.09          .0229508        .0147368        87.1429
( 143900  24400  6100  9500 )
 35  13.0333  332.481          .0518518        .116667         23.5714
( 38800  6600  2700  1200 )
 36  0  0       0               0               0
( 0  0  0  0 )
 37  0  0       0               0               0
( 0  0  0  0 )
 38  0  0       0               0               0
( 0  0  0  0 )
 39  2.68727  68.5528          .233333         .127273         9.64286
( 8000  2700  600  1100 )
 40  2.217  56.5561            .2              .233333         8.92857
( 6600  2500  700  600 )
 41  0  0       0               0               0
( 0  0  0  0 )
 42  13.134  335.052           .0666667        .0518518        26.7857
( 39100  7500  2100  2700 )
 43  8.39772  214.227          .07             .1              18.9286
( 25000  5300  2000  1400 )
 44  26.1001  665.819          .0264151        .0388889        50.7143
( 77700  14200  5300  3600 )
 45  3.42627  87.4048          .0933333        .14             14.6429
( 10200  4100  1500  1000 )
 46  0  0       0               0               0
( 0  0  0  0 )
 47  0  0       0               0               0
( 0  0  0  0 )
 48  .571045  14.5675          .7              1.4             2.5
( 1700  700  200  100 )
 49  0  0       0               0               0
( 0  0  0  0 )
 50  0  0       0               0               0
( 0  0  0  0 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH            L/A
    25.8831       660.283        .0428659        .03663          39.9857
SD  29.6794       757.128                                        40.3455
SE  4.1973        107.074                                        5.70572
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 18 JPL 6-792 SPEC C DISLOCATIONS ONLY 6/27/79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 9.9

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	83.7374	4.27232E-03	92.3483	85.3658	6.07857E-03
(829	851	758	820)		
2	226.465	.0115543	78.4753	161.663	.0151357
(2242	2119	892	433)		
3	306.162	.0156205	90.6736	163.551	.0138929
(3031	1945	772	428)		
4	0	0	0	0	
(0	0	0	0)		
5	2.62626	1.33993E-04	3181.82	7000	3.57143E-04
(26	50	22	10)		
6	0	0	0	0	
(0	0	0	0)		
7	45.2525	2.30880E-03	0	0	0
(448	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	0	0	7000	14000	0
(0	0	10	5)		
11	0	0	0	0	
(0	0	0	0)		
12	182.424	9.30736E-03	139.165	201.149	9.92143E-03
(1806	1389	503	348)		
13	0	0	0	0	
(0	0	0	0)		
14	0	0	0	0	
(0	0	0	0)		
15	0	0	0	0	
(0	0	0	0)		
16	0	0	0	0	
(0	0	0	0)		
17	0	0	0	0	
(0	0	0	0)		
18	0	0	0	0	
(0	0	0	0)		
19	0	0	4666.67	70000	7.14286E-05
(0	10	15	1)		
20	0	0	0	0	
(0	0	0	0)		
21	.40404	2.06143E-05	0	0	1.42857E-04
(4	20	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	6.16162	3.14368E-04	3684.21	11666.7	2.64286E-04
(61	37	19	6)		
24	0	0	0	0	
(0	0	0	0)		
25	46.6667	2.38095E-03	440.252	1014.49	3.11429E-03
(462	436	159	69)		

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                ********AVERAGE********
       NO.        NO./AREA          MFPV          MFPH          L/A
   35.996         1.83653E-03     555.555       825.472       1.95914E-03
SD 79.2943        4.04563E-03                                   4.34258E-03
SE 15.8589        8.09125E-04                                   8.68517E-04
 26  282.121      .0143939          87.1731       171.569       .0146643
( 2793  2053  803  408 )
 27  255.96       .0130592          92.8382       186.667       .0141357
( 2534  1979  754  375 )
 28  183.03       9.33828E-03       118.644       225.08        .0105357
( 1812  1475  590  311 )
 29  190.202      9.70419E-03       140           236.486       9.57143E-03
( 1883  1340  500  296 )
 30  853.131      .0435271          27.833        55.6439       .0482929
( 8446  6761  2515  1258 )
 31  787.374      .0401721          26.8302       66.4767       .0453786
( 7795  6353  2609  1053 )
 32  284.849      .0145331          78.2998       144.928       .0177571
( 2820  2486  894  483 )
 33  443.333      .0226191          49.5751       102.941       .0268429
( 4389  3758  1412  680 )
 34  130.707      6.66873E-03       253.623       360.825       6.42143E-03
( 1294  899  276  194 )
 35  850.202      .0433777          28.5598       62.7803       .0435
( 8417  6090  2451  1115 )
 36  1037.88      .052953           21.0843       43.7774       .0594643
( 10275  8325  3320  1599 )
 37  2203.33      .112415           15.0895       28.6768       .0902072
( 21813  12629  4639  2441 )
 38  1389.09      .070872           19.2731       40            .0664
( 13752  9296  3632  1750 )
 39  1684.65      .0859514          15.8371       30.0946       .0810357
( 16678  11345  4420  2326 )
 40  2395.15      .122202           13.4719       26.3059       .0936429
( 23712  13110  5196  2661 )
 41  1552.53      .0792105          17.2669       36.4204       .0710429
( 15370  9946  4054  1922 )
 42  294.343      .0150175          80.2752       189.189       .0149071
( 2914  2087  872  370 )
 43  1810.61      .0923779          14.0449       34.6706       .0844929
( 17925  11829  4984  2019 )
 44  681.01       .0347454          42.3985       83.4326       .0306286
( 6742  4288  1651  839 )
 45  187.778      9.58050E-03       123.675       203.488       .0104786
( 1859  1467  566  344 )
 46  2110.1       .107658           15.0797       26.8817       .0866572
( 20890  12132  4642  2604 )
 47  0  0         0                 0             0
( 0  0  0  0 )
 48  0  0         0                 0             0
( 0  0  0  0 )
 49  453.232      .0231241          52.5525       107.858       .02555
( 4487  3577  1332  649 )
 50  520.707      .0265667          44.7857       83.1354       .0294571
( 5155  4124  1563  842 )
                ********AVERAGE********
       NO.        NO./AREA          MFPV          MFPH          L/A
   429.624        .0219196          61.5926       122.126       .0206009
SD 650.854        .0332068                                      .0287159
SE 92.0446        4.69616E-03                                   4.06104E-03
*
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ORIGINAL PAGE IS
OF POOR QUALITY

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 19 JPL 6-792 SPEC D TWINS ONLY 6/27/79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3608

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	13.9967	357.058	.035	.0264151	51.7857
(50500	14500	4000	5300)		
2	17.7106	451.802	.0291667	.0241379	57.8571
(63900	16200	4800	5800)		
3	8.42572	214.942	.0666667	.056	26.4286
(30400	7400	2100	2500)		
4	0	0	0	0	
(0	0	0	0)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	0	0	0	0	
(0	0	0	0)		
11	4.07428	103.936	.010687	4.49582E-04	23.2143
(14700	6500	13100	311400)		
12	.637472	16.2621	.466667	1.40000E-03	3.92857
(2300	1100	300	100000)		
13	138.581	3535.23	.175	.233333	10
(500000	2800	800	600)		
14	6.95676	177.468	.0482759	.0736842	26.4286
(25100	7400	2900	1900)		
15	67.6552	1725.9	9.03226E-03	.0133333	150.357
(244100	42100	15500	10500)		
16	25.4989	650.482	.0411765	.0411765	40
(92000	11200	3400	3400)		
17	21.0643	537.355	.0215385	.0358974	61.7857
(76000	17300	6500	3900)		
18	20.2882	517.557	.0179487	.0259259	86.7857
(73200	24300	7800	5400)		
19	17.2672	440.489	.0259259	.04	53.5714
(62300	15000	5400	3500)		
20	63.5809	1621.96	8.75000E-03	.0135922	164.643
(229400	46100	16000	10300)		
21	12.7217	324.534	.0466667	.0358974	40.3571
(45900	11300	3000	3900)		
22	12.2228	311.807	.0424242	.0341463	41.0714
(44100	11500	3300	4100)		
23	5.73725	146.358	1.22699E-03	.0583333	27.1429
(20700	7600	114100	2400)		
24	19.8171	505.538	.0237288	.0205882	69.2857
(71500	19400	5900	6800)		
25	6.62417	168.984	.0538461	.0736842	27.8571
(23900	7800	2600	1900)		

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 26  14.551  371.199          .0269231        .0466667        49.2857
( 52500  13800  5200  3000 )
 27  0  0       1.4             0               0
( 0  0  100  0 )
            ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH            L/A
   17.6819      451.069         .0174354        7.76819E-03     37.4735
SD 29.0753      741.716                                         42.0568
SE 5.59554      142.743                                         8.09383
 28  7.92683  202.215          .0875           .0518518        24.6429
( 28600  6900  1600  2700 )
 29  51.9124  1324.3           .0304348        .0179487        70.3571
( 187300  19700  4600  7800 )
 30  57.5398  1467.83          .0181818        .0205882        78.9286
( 207600  22100  7700  6800 )
 31  2.02328  51.6143          .35             .28             5.35714
( 7300  1500  400  500 )
 32  .304878  7.7775           .7              1.4             1.42857
( 1100  400  200  100 )
 33  94.4568  2409.61          .0202899        .0135922        98.2143
( 340800  27500  6900  10300 )
 34  104.407  2663.44          .021875         .0134615        98.2143
( 376700  27500  6400  10400 )
 35  79.8226  2036.29          .0215385        .0157303        88.9286
( 288000  24900  6500  8900 )
 36  76.4412  1950.03          .0194444        .0118644        106.786
( 275800  29900  7200  11800 )
 37  18.4035  469.478          .056            .04             34.6429
( 66400  9700  2500  3500 )
 38  78.1042  1992.45          .0304348        .0237288        62.5
( 281800  17500  4600  5900 )
 39  67.7661  1728.73          .0208955        .0126126        102.857
( 244500  28800  6700  11100 )
 40  64.939  1656.61           .0186667        .0130841        104.286
( 234300  29200  7500  10700 )
 41  61.9734  1580.95          .0175           .0110236        114.071
( 223600  32500  8000  12700 )
 42  3.02106  77.068           .155556         .14             11.4286
( 10900  3200  900  1000 )
 43  0  0       0               0               0
( 0  0  0  0 )
 44  35.7816  912.796          .0222222        .0137255        94.6429
( 129100  26500  6300  10200 )
 45  78.4368  2000.94          .0291667        .0153846        80
( 283000  22400  4800  9100 )
 46  49.6397  1266.32          .0378378        .0197183        62.1429
( 179100  17400  3700  7100 )
 47  83.3149  2125.38          .0197183        .0112           112.143
( 300600  31400  7100  12500 )
 48  71.2583  1817.81          .0177215        9.72222E-03     128.571
( 257100  36000  7900  14400 )
 49  70.8426  1807.21          .0155556        .0117647        119.286
( 255600  33400  9000  11900 )
 50  56.9845  1453.69          .0233333        .0152174        88.9286
( 205600  24900  6000  9200 )
            ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH            L/A
   33.8542      863.628         .0210021        .0105232        54.0429
SD 35.029       893.596                                         44.8753
SE 4.95385      126.374                                         6.34633
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 19 JPL 6-792 SPEC D DISLOCATIONS ONLY 6-27-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 11.5

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	465.913	.0237711	48.8827	78.5634	.0275929
(5358	3863	1432	891)		
2	462.348	.0235892	50.0357	73.7618	.0270571
(5317	3788	1399	949)		
3	327.13	.0166903	48.6111	156.25	.0248714
(3762	3482	1440	448)		
4	11.913	6.07808E-04	2800	2058.82	3.14286E-04
(137	44	25	34)		
5	1.13043	5.76753E-05	1489.36	10000	2.92857E-04
(13	41	47	7)		
6	414.261	.0211358	40.4858	82.0633	.0320929
(4764	4493	1729	853)		
7	664.261	.0338909	32.1691	64.0439	.0400143
(7639	5602	2176	1093)		
8	219.043	.0111757	77.6914	191.781	.0155071
(2519	2171	901	365)		
9	13.3913	6.83230E-04	933.333	2592.59	1.37143E-03
(154	192	75	27)		
10	3.56522	1.81899E-04	3043.48	8750	5.00000E-04
(41	70	23	8)		
11	7.91304	4.03727E-04	2800	5833.33	4.64286E-04
(91	65	25	12)		
12	0	0	0	0	0
(0	0	0	0)		
13	0	0	0	0	0
(0	0	0	0)		
14	0	0	0	0	0
(0	0	0	0)		
15	0	0	0	0	0
(0	0	0	0)		
16	0	0	0	0	0
(0	0	0	0)		
17	0	0	0	0	0
(0	0	0	0)		
18	0	0	0	0	0
(0	0	0	0)		
19	0	0	0	0	0
(0	0	0	0)		
20	1187.74	.0605989	17.4173	31.9781	.0715357
(13659	10015	4019	2189)		
21	336.087	.0171473	52.8701	115.512	.0301357
(3865	4219	1324	606)		
22	996.261	.0508296	21.8955	42.5015	.0599214
(11457	8389	3197	1647)		
23	328	.0167347	64.8749	141.988	.0188571
(3772	2640	1079	493)		
24	1083.3	.0552706	19.4175	31.6456	.0685143
(12458	9592	3605	2212)		
25	664.522	.0339042	25.4545	54.8589	.04715
(7642	6601	2750	1276)		

```
 26  0  0        23333.3          70000          0
( 0  0  3  1 )
 27  19.7391   1.00710E-03      1076.92          2413.79          1.19286E-03
( 227  167  65  29 )
              ********AVERAGE********
        NO.       NO./AREA         MFPV            MFPH          L/A
    266.908       .0136178        74.6622         143.836        .0173106
SD  360.808       .0184086                                       .0225962
SE  69.4376       3.54274E-03                                    4.34864E-03
 28  56.7826   2.89707E-03      406.977          492.958          3.09286E-03
( 653  433  172  142 )
 29  104.609   5.33718E-03      123.239          338.164          9.80714E-03
( 1203  1373  568  207 )
 30  0  0        0                0              4.72857E-03
( 0  662  0  0 )
 31  64.7826   3.30524E-03      204.082          278.884          6.92143E-03
( 745  969  343  251 )
 32  34.6957   1.77019E-03      380.435          933.333          3.22143E-03
( 399  451  184  75 )
 33  751.478   .0383407         22.3357          52.6712          .0574143
( 8642  8038  3134  1329 )
 34  22   1.12245E-03          274.51           769.231          2.59286E-03
( 253  363  255  91 )
 35  0  0        0                0              0
( 0  0  0  0 )
 36  0  0        0                0              0
( 0  0  0  0 )
 37  618.174   .0315395         30.541           62.6679          .0413643
( 7109  5791  2292  1117 )
 38  11.6522   5.94499E-04      1707.32          2258.06          8.71429E-04
( 134  122  41  31 )
 39  0  0        0                0              0
( 0  0  0  0 )
 40  0  0        0                0              0
( 0  0  0  0 )
 41  2.17391   1.10914E-04      6363.64          23333.3          2.64286E-04
( 25  37  11  3 )
 42  0  0        0                0              0
( 0  0  0  0 )
 43  382.783   .0195297         45.3368          88.7199          .0271
( 4402  3794  1544  789 )
 44  3.21739   1.64153E-04      1372.55          4117.65          6.14286E-04
( 37  86  51  17 )
 45  93.0435   4.74712E-03      0                0                6.77143E-03
( 1070  948  0  0 )
 46  202.522   .0103327         120.898          159.091          .0131571
( 2329  1842  579  440 )
 47  270.261   .0137888         127.971          140.281          5.27143E-03
( 3108  738  547  499 )
 48  811.565   .0414064         23.6407          48.143           .0549786
( 9333  7697  2961  1454 )
 49  885.13    .0451597         27.2798          57.5185          .0432072
( 10179  6049  2566  1217 )
 50  0  0        11666.7          23333.3          0
( 0  0  6  3 )
 51  0  0        0                0              0
( 0  0  0  0 )
              ********AVERAGE********
        NO.       NO./AREA         MFPV            MFPH          L/A
    225.91        .011526         88.0004         171.593        .0146817
SD  328.813       .0167762                                       .0207487
SE  46.043        2.34913E-03                                    2.90539E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 20 JPL 6-792 SPEC E TWINS ONLY 6-27-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3133

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
X	0	0	0	0	
(0 0 0 0) FIELD DELETED					
X	8.26684	210.889	.466667	.175	6.78572
(25900 1900 300 800) FIELD DELETED					
1	59.5914	1520.19	.0318182	.0222222	60.7143
(186700 17000 4400 6300)					
2	77.5614	1978.61	.0325581	.0245614	58.5714
(243000 16400 4300 5700)					
3	47.6859	1216.48	.0466667	.0333333	40.7143
(149400 11400 3000 4200)					
4	65.2091	1663.5	.0179487	.012069	108.571
(204300 30400 7800 11600)					
5	64.9856	1657.8	.0152174	.0113821	117.143
(203600 32800 9200 12300)					
6	183.434	4679.45	.0181818	.0159091	91.4286
(574700 25600 7700 8800)					
6	9.00096	229.616	.0378378	.07	37.8571
(28200 10600 3700 2000)					
7	2.01085	51.2973	.175	.2	7.5
(6300 2100 800 700)					
8	5.90488	150.635	.0105263	.1	27.5
(18500 7700 13300 1400)					
9	4.05362	103.409	.0608696	.116667	19.2857
(12700 5400 2300 1200)					
10	73.5397	1876.01	6.33484E-03	.0148936	194.286
(230400 54400 22100 9400)					
11	27.5774	703.505	.0225806	.027451	65
(86400 18200 6200 5100)					
12	55.0271	1403.75	.014	.0112903	126.071
(172400 35300 10000 12400)					
13	91.797	2341.76	.0145833	.0105263	130
(287600 36400 9600 13300)					
14	62.496	1594.29	.0162791	.0138614	103.929
(195800 29100 8600 10100)					
15	35.557	907.066	.0229508	.0177215	79.6429
(111400 22300 6100 7900)					
16	20.8746	532.514	.0378378	.0285714	47.5
(65400 13300 3700 4900)					
17	22.5662	575.669	.0291667	.0297872	52.5
(70700 14700 4800 4700)					
18	82.4449	2103.19	.0133333	.0117647	127.857
(258300 35800 10500 11900)					
19	71.6566	1827.97	.0147368	.012963	116.071
(224500 32500 9500 10800)					
20	87.9668	2244.05	.0113821	.0102941	146.429
(275600 41000 12300 13600)					
21	68.2094	1740.04	.0145833	.0121739	118.214
(213700 33100 9600 11500)					
22	111.714	2849.85	.0112903	.0107692	145.357
(350000 40700 12400 13000)					
23	85.0622	2169.96	.0147368	.0118644	121.786
(266500 34100 9500 11800)					

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 24  79.0616  2016.88          .0130841        .010687         136.429
( 247700  38200  10700  13100 )
 25  75.9017  1936.27          .0132075        .0104478        132.857
( 237800  37200  10600  13400 )
 26  89.85  2292.09            .0142857        .0121739        121.071
( 281500  33900  9800  11500 )
              ********AVERAGE********
       NO.      NO./AREA         MFPV            MFPH          L/A
   56.8195      1449.48          .016946         .0162645      93.9561
SD 30.6181      781.073                                        46.5842
SE 6.00469      153.181                                        9.1359
 27  74.5292  1901.26          .0125           9.85915E-03     140.357
( 233500  39300  11200  14200 )
 28  73.2206  1867.87          .021875         .0184211        81.4286
( 229400  22800  6400  7600 )
 29  .414938  10.5851          1.4             .7              1.78571
( 1300  500  100  200 )
 30  .159591  4.07121          1.4             1.4             .714286
( 500  200  100  100 )
 31  .414938  10.5851          1.4             1.4             1.42857
( 1300  400  100  100 )
 32  .351101  8.95667          1.4             1.4             1.07143
( 1100  300  100  100 )
 33  6.60709  168.548          .0424242        .127273         28.5714
( 20700  8000  3300  1100 )
 34  .861794  21.9845          .466667         .466667         4.28571
( 2700  1200  300  300 )
 35  1.88318  48.0403          .175            .28             7.14286
( 5900  2000  800  500 )
 36  64.06  1634.18            .233333         1.4             3.21429
( 200700  900  600  100 ) FIELD DELETED
 36  1.34057  34.1982          .233333         .466667         5.71429
( 4200  1600  600  300 )
 37  .0638366  1.62848         0               0               0
( 200  0  0  0 )
 38  5.77721  147.378          .0823529        .107692         18.2143
( 18100  5100  1700  1300 )
 39  2.07469  52.9257          .107692         .35             9.64286
( 6500  2700  1300  400 )
 40  0  0       0               0               0
( 0  0  0  0 )
 41  1.53208  39.0836          2.78940E-04     6.82927E-03     14.2857
( 4800  4000  501900  20500 )
 42  .766039  19.5418          .466667         0               2.5
( 2400  700  300  0 )
 43  3.22375  82.2385          .2              .012963         9.28572
( 10100  2600  700  10800 )
 44  9.99042  254.858          .0666667        .04             31.4286
( 31300  8800  2100  3500 )
              ********AVERAGE********
       NO.      NO./AREA         MFPV            MFPH          L/A
   37.739       962.73          8.25959E-03     .0216292        63.6526
SD 35.918       916.275                                        55.7257
SE 5.41484      138.134                                        8.40097
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 20 JPL 6-792 SPEC E DISLOCATIONS ONLY 6-27-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6.34

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	309.779	.0158051	35.3179	36.2882	.0139286
(1964	1950	1982	1929)		
2	490.852	.0250435	23.2095	24.7875	.0222786
(3112	3119	3016	2824)		
3	85.3312	4.35364E-03	144.033	945.946	6.07143E-04
(541	85	486	74)		
4	9.62145	4.90891E-04	546.875	4117.65	7.85714E-04
(61	110	128	17)		
5	10.8833	5.55270E-04	3181.82	7777.78	1.85714E-04
(69	26	22	9)		
6	36.1199	1.84285E-03	256.41	386.74	2.07143E-04
(229	29	273	181)		
7	1.1041	5.63317E-05	5000	4117.65	1.07143E-04
(7	15	14	17)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	19.0852	9.73734E-04	679.612	603.448	7.85714E-04
(121	110	103	116)		
11	3.15457	1.60948E-04	4375	3684.21	2.14286E-04
(20	30	16	19)		
12	14.8265	7.56454E-04	648.148	534.351	8.00000E-04
(94	112	108	131)		
13	8.35962	4.26511E-04	1750	1521.74	3.14286E-04
(53	44	40	46)		
14	4.25868	2.17279E-04	2121.21	1000	1.64286E-04
(27	23	33	70)		
15	244.006	.0124493	35.6415	46.0224	.0110357
(1547	1545	1964	1521)		
16	9.62145	4.90891E-04	3684.21	0	1.28571E-04
(61	18	19	0)		
17	0	0	0	4.50000E-04	
(0	63	0	0)		
18	1.57729	8.04739E-05	1250	318.182	1.00714E-03
(10	141	56	220)		
19	4.4164	2.25327E-04	3333.33	3333.33	1.50000E-04
(28	21	21	21)		
20	0	0	148.62	160.92	3.47857E-03
(0	487	471	435)		
21	192.902	9.84195E-03	52.8302	49.435	9.57143E-03
(1223	1340	1325	1416)		
22	0	0	0	0	
(0	0	0	0)		
23	0	0	7777.78	0	0
(0	0	9	0)		
24	62.4606	3.18676E-03	334.928	319.635	0
(396	0	209	219)		
25	0	0	0	0	
(0	0	0	0)		

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            ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   60.3344      3.07829E-03   169.985       188.883       2.64800E-03
SD 119.355      6.08953E-03                                5.45638E-03
SE 23.871       1.21791E-03                                1.09128E-03
 26  0  0       426.829       445.86        1.15000E-03
( 0  161  164  157 )
 27  44.9527   2.29350E-03     0             397.727       2.45714E-03
( 285  344  0  176 )
 28  106.151   5.41589E-03     80.3674       58.0431       8.30714E-03
( 673  1163  871  1206 )
 29  69.7161   3.55694E-03     59.8802       134.357       5.01429E-03
( 442  702  1169  521 )
 30  0  0       0             0             0
( 0  0  0  0 )
 31  9.46372   4.82843E-04     79.8176       864.197       7.25714E-03
( 60  1016  877  81 )
 32  54.1009   2.76025E-03     231.023       246.479       9.07143E-04
( 343  127  303  284 )
 33  42.5868   2.17279E-03     238.908       248.227       2.07143E-03
( 270  290  293  282 )
 34  49.3691   2.51883E-03     175           168.269       2.43571E-03
( 313  341  400  416 )
 35  21.1356   1.07835E-03     583.333       666.667       2.85714E-04
( 134  40  120  105 )
 36  26.4984   1.35196E-03     518.518       619.469       1.02143E-03
( 168  143  135  113 )
 37  10.2524   5.23080E-04     813.953       813.953       5.71429E-04
( 65  80  86  86 )
 38  5.20505   2.65564E-04     2187.5        1891.89       2.28571E-04
( 33  32  32  37 )
 39  11.5142   5.87459E-04     897.436       1093.75       6.14286E-04
( 73  86  78  64 )
 40  8.99054   4.58701E-04     875           538.461       6.14286E-04
( 57  86  80  130 )
 41  5.52051   2.81658E-04     1555.56       1296.3        3.07143E-04
( 35  43  45  54 )
 42  112.934   5.76193E-03     130.112       117.057       4.65714E-03
( 716  652  538  598 )
 43  1298.27   .066238         9.12885       9.91923       .0598071
( 8231  8373  7668  7057 )
 44  1738.96   .0887224        5.93774       5.11061       .0842214
( 11025  11791  11789  13697 )
 45  231.073   .0117894        48.4429       50.4323       .0115929
( 1465  1623  1445  1388 )
 46  6.30915   3.21895E-04     1707.32       1521.74       3.21429E-04
( 40  45  41  46 )
 47  .946372   4.82843E-05     14000         10000         2.85714E-05
( 6  4  5  7 )
 48  36.4353   1.85895E-03     460.526       445.86        2.45714E-03
( 231  344  152  157 )
 49  19.4006   9.89828E-04     432.099       608.696       6.85714E-04
( 123  96  162  115 )
 50  19.4006   9.89828E-04     386.74        522.388       1.10714E-03
( 123  155  181  134 )
            ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   108.751      5.54851E-03   94.7765       96.7492       5.28643E-03
SD 305.303      .0155767                                   .0145079
SE 43.1763      2.20288E-03                                2.05172E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 21 JPL 6-792 SPEC F TWINS ONLY 6-28-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 50000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3233

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	73.7086	18803.2	9.92908E-04	8.53658E-04	1728.57
(238300	48400	14100	16400)		
2	74.2963	18953.1	9.79021E-04	8.91720E-04	1739.29
(240200	48700	14300	15700)		
3	61.2434	15623.3	1.09375E-03	1.09375E-03	1428.57
(198000	40000	12800	12800)		
4	79.3381	20239.3	1.12903E-03	1.00719E-03	1503.57
(256500	42100	12400	13900)		
5	37.6121	9594.93	1.45833E-03	1.34615E-03	1125
(121600	31500	9600	10400)		
6	0	0	0	0	
(0	0	0	0)		
7	.556758	142.03	.028	1.39721E-04	50
(1800	1400	500	100200)		
8	35.2614	8995.25	5.88235E-04	7.00000E-05	1392.86
(114000	39000	23800	200000)		
9	23.5076	5996.83	1.23894E-03	2.69231E-03	1035.71
(76000	29000	11300	5200)		
10	4.14476	1057.34	6.08696E-03	.0155556	192.857
(13400	5400	2300	900)		
11	123.848	31593.8	9.45946E-04	1.94444E-03	1275
(400400	35700	14800	7200)		
12	30.0031	7653.85	1.26126E-03	2.25806E-03	1082.14
(97000	30300	11100	6200)		
13	10.1144	2580.22	.01	8.75000E-03	167.857
(32700	4700	1400	1600)		
14	0	0	0	0	
(0	0	0	0)		
15	51.9641	13256.2	1.79487E-03	1.48936E-03	996.429
(168000	27900	7800	9400)		
16	.340241	86.7963	.14	0	14.2857
(1100	400	100	0)		
17	0	0	0	0	
(0	0	0	0)		
18	2.81472	718.042	.028	.0466667	46.4286
(9100	1300	500	300)		
19	6.49551	1657.02	5.18518E-03	6.36364E-03	292.857
(21000	8200	2700	2200)		
20	48.0049	12246.2	9.03226E-04	1.27273E-03	1539.29
(155200	43100	15500	11000)		
21	44.7263	11409.8	1.03704E-03	1.72839E-03	1257.14
(144600	35200	13500	8100)		
22	50.665	12924.8	9.45946E-04	1.41414E-03	1450
(163800	40600	14800	9900)		
23	.494896	126.249	.07	.14	17.8571
(1600	500	200	100)		
24	24.4046	6225.66	2.22222E-03	1.79487E-03	760.714
(78900	21300	6300	7800)		
25	56.7584	14479.2	1.23894E-03	9.92908E-04	1417.86
(183500	39700	11300	14100)		
26	200.495	51146.7	1.55556E-03	1.32075E-03	1042.86
(648200	29200	9000	10600)		

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        ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   33.6121      8574.52        1.74043E-03     7.71945E-04   820.572
SD 32.1014      8189.12                                      643.326
SE 6.42027      1637.82                                      128.665
 26  45.1593  11520.2          1.38614E-03     1.16667E-03   1242.86
( 146000  34800  10100  12000 )
 27  40.798  10407.7           1.79487E-03     1.45833E-03   960.714
( 131900  26900  7800  9600 )
 28  9.31024  2375.06          7.00000E-03     5.83333E-03   239.286
( 30100  6700  2000  2400 )
 29  0  0       0               0               0
( 0  0  0  0 )
 30  .154655  39.4528          0               0             7.14286
( 500  200  0  0 )
 31  .247448  63.1246          .14             0             10.7143
( 800  300  100  0 )
 32  0  0       0               0               0
( 0  0  0  0 )
 33  .371172  94.6868          .14             .14           21.4286
( 1200  600  100  100 )
 34  .0927931  23.6717         .14             0             3.57143
( 300  100  100  0 )
 35  0  0       0               0               0
( 0  0  0  0 )
 36  0  0       0               0               0
( 0  0  0  0 )
 37  3.64986  931.087          .01             8.75000E-03   175
( 11800  4900  1400  1600 )
 38  3.588  915.306            .0127273        .01           139.286
( 11600  3900  1100  1400 )
 39  22.4869  5736.44          2.08955E-03     2.80000E-03   675
( 72700  18900  6700  5000 )
 40  15.0325  3834.82          3.25581E-03     5.60000E-03   410.714
( 48600  11500  4300  2500 )
 41  7.14507  1822.72          7.00000E-03     5.18518E-03   260.714
( 23100  7300  2000  2700 )
 42  1.67028  426.091          .0175           8.23529E-03   89.2857
( 5400  2500  800  1700 )
 43  0  0       0               0               0
( 0  0  0  0 )
 44  7.176  1830.61            7.36842E-03     8.23529E-03   214.286
( 23200  6000  1900  1700 )
 45  3.64986  931.087          4.37500E-03     .01           139.286
( 11800  3900  3200  1400 )
 46  3.37148  860.072          .0127273        .0175         114.286
( 10900  3200  1100  800 )
 47  87.8132  22401.3          7.36842E-03     .0116667      192.857
( 283900  5400  1900  1200 )
 48  1.94865  497.106          .028            .035          57.1429
( 6300  1600  500  400 )
 49  0  0       0               0               0
( 0  0  0  0 )
 50  0  0       0               0               0
( 0  0  0  0 )
        ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   21.8794      5581.47        2.84322E-03     1.40590E-03   509.357
SD 29.1428      7434.38                                      593.34
SE 4.12141      1051.38                                      83.9109
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 21 JPL 6-792 SPEC F DISLOCATIONS ONLY 6-28-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 8.9

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	154.494	7.88237E-03	138.614	150.215	.0112286
(1375	1572	505	466)		
2	9.21348	4.70076E-04	1666.67	1627.91	6.50000E-04
(82	91	42	43)		
3	82.6966	4.21922E-03	231.788	514.706	6.60714E-03
(736	925	302	136)	FIELD DELETED	
3	3.48315	1.77712E-04	2187.5	6363.64	3.14286E-04
(31	44	32	11)		
4	11.3483	5.78996E-04	2692.31	2592.59	5.28571E-04
(101	74	26	27)		
5	7.64045	3.89819E-04	2058.82	1555.56	8.00000E-04
(68	112	34	45)		
6	2.24719	1.14653E-04	8750	11666.7	2.14286E-04
(20	30	8	6)		
7	24.9438	1.27264E-03	714.286	522.388	1.46429E-03
(222	205	98	134)		
8	44.0449	2.24719E-03	370.37	445.86	3.63571E-03
(392	509	189	157)		
9	7.41573	3.78354E-04	1521.74	1794.87	8.42857E-04
(66	118	46	39)		
10	1.46067	7.45242E-05	8750	8750	1.28571E-04
(13	18	8	8)		
11	14.6067	7.45242E-04	1129.03	823.529	1.55000E-03
(130	217	62	85)		
12	.561798	2.86632E-05	35000	35000	5.00000E-05
(5	7	2	2)		
13	1.23596	6.30589E-05	8750	10000	1.92857E-04
(11	27	8	7)		
14	3.03371	1.54781E-04	17500	6363.64	3.78571E-04
(27	53	4	11)		
15	8.53933	4.35680E-04	1707.32	2916.67	8.14286E-04
(76	114	41	24)		
16	8.08989	4.12749E-04	1400	1346.15	1.11429E-03
(72	156	50	52)		
17	6.29214	3.21027E-04	2187.5	2058.82	7.57143E-04
(56	106	32	34)		
18	75.3933	3.84660E-03	220.126	235.69	6.94286E-03
(671	972	318	297)		
19	23.7079	1.20959E-03	1000	1228.07	1.37857E-03
(211	193	70	57)		
20	3.25843	1.66246E-04	4666.67	3888.89	3.64286E-04
(29	51	15	18)		
21	0	0	0	0	
(0	0	0	0)		
22	1.46067	7.45242E-05	5000	14000	3.64286E-04
(13	51	14	5)		
23	253.82	.01295	61.674	54.6875	.0229714
(2259	3216	1135	1280)		
24	1005.62	.0513071	18.8985	22.3214	.151529
(8950	21214	3704	3136)		
25	41.9101	2.13827E-03	336.538	344.828	4.66429E-03
(373	653	208	203)		

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                ********AVERAGE********
      NO.       NO./AREA        MFPV          MFPH          L/A
   68.5528      3.49759E-03   263.118       284.692       8.51514E-03
SD 199.339      .0101704                                   .0295951
SE 39.8678      2.03407E-03                                5.91902E-03
 26  0  0       0             0             0
( 0  0  0  0 )
 27  1.46067  7.45242E-05      0             3684.21       0
( 13  0  0  19 )
 28  .337079  1.71979E-05      10000         35000         0
( 3  0  7  2 )
 29  59.4382  3.03256E-03      212.766       222.222       .0105786
( 529  1481  329  315 )
 30  2.58427  1.31851E-04      8750          8750          2.35714E-04
( 23  33  8  8 )
 31  5.2809  2.69434E-04       769.231       1794.87       1.28571E-03
( 47  180  91  39 )
 32  7.41573  3.78354E-04      1250          1029.41       1.14286E-03
( 66  160  56  68 )
 33  5.50562  2.80899E-04      1750          3333.33       7.85714E-04
( 49  110  40  21 )
 34  395.843  .0201961        39.6376       51.6605       .0344357
( 3523  4821  1766  1355 )
 35  92.1348  4.70076E-03      162.413       225.08        6.80714E-03
( 820  953  431  311 )
 36  21.1236  1.07773E-03      578.512       972.222       1.32143E-03
( 188  185  121  72 )
 37  676.18  .034499           26.7074       35.3          .0607929
( 6018  8511  2621  1983 )
 38  34.2697  1.74845E-03      241.379       196.078       9.16429E-03
( 305  1283  290  357 )
 39  73.5955  3.75487E-03      262.172       157.658       7.36429E-03
( 655  1031  267  444 )
 40  11.9101  6.07659E-04      3181.82       7000          1.00714E-03
( 106  141  22  10 )
 41  0  0       23333.3       35000         0
( 0  0  3  2 )
 42  299.551  .0152832         60.3969       87.5          .0234214
( 2666  3279  1159  800 )
 43  218.427  .0111442         60.6586       64.9954       .0212143
( 1944  2970  1154  1077 )
 44  60  3.06123E-03          362.694       625           3.90714E-03
( 534  547  193  112 )
 45  283.596  .0144692         70.7786       75.431        .02325
( 2524  3255  989  928 )
 46  1097.42  .0559906         19.7406       24.4073       .0705572
( 9767  9878  3546  2868 )
 47  0  0       0             0             0
( 0  0  0  0 )
 48  12.809  6.53520E-04       578.512       1129.03       1.07143E-03
( 114  150  121  62 )
 49  50.6742  2.58542E-03      237.288       321.101       5.80000E-03
( 451  812  295  218 )
 50  44.8315  2.28732E-03      546.875       700           2.58571E-03
( 399  362  128  100 )
                ********AVERAGE********
      NO.       NO./AREA        MFPV          MFPH          L/A
   103.364      5.27368E-03   172.516       202.102       9.99214E-03
SD 229.802      .0117246                                   .0246884
SE 32.4989      1.65811E-03                                3.49147E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 22 JPL6-840 SPEC A TWINS ONLY

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3000

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
X	0 0	0	0	0	
(0 0 0 0)	FIELD DELETED				
1	64.8	1653.06	.0186667	2.19780E-03	91.0714
(194400 25500 7500 63700)					
2	86.8	2214.29	.0184211	.0177215	87.8571
(260400 24600 7600 7900)					
3	90.3667	2305.27	.0166667	.0177215	97.1429
(271100 27200 8400 7900)					
4	85.8	2188.78	.0237288	.0205882	73.9286
(257400 20700 5900 6800)					
5	124.067	3164.97	.0186667	.0208955	82.1429
(372200 23000 7500 6700)					
6	137.933	3518.71	.0155556	.0155556	106.786
(413800 29900 9000 9000)					
7	105.367	2687.93	.0304348	.028	56.4286
(316100 15800 4600 5000)					
8	106.633	2720.24	.0166667	.0162791	99.6429
(319900 27900 8400 8600)					
9	69.6	1775.51	.0145833	.0153846	106.071
(208800 29700 9600 9100)					
10	113.133	2886.05	.0166667	.0184211	93.5714
(339400 26200 8400 7600)					
11	108.533	2768.71	.0148936	.0152174	110
(325600 30800 9400 9200)					
12	43.2667	1103.74	.027451	.0222222	63.9286
(129800 17900 5100 6300)					
13	22.6667	578.231	.0241379	.0241379	65.7143
(68000 18400 5800 5800)					
14	80.3333	2049.32	.0164706	.0159091	106.786
(241000 29900 8500 8800)					
15	23.1333	590.136	.0451613	.0466667	34.6429
(69400 9700 3100 3000)					
16	11.4	290.816	.07	.07	22.1429
(34200 6200 2000 2000)					
17	41.1333	1049.32	.0318182	.0736842	39.6429
(123400 11100 4400 1900)	FIELD DELETED				
17	43.9667	1121.6	.0148936	.0172839	97.8571
(131900 27400 9400 8100)					
18	24.4	622.449	.0424242	.0378378	39.2857
(73200 11000 3300 3700)					
19	15.3667	392.007	.035	.0451613	41.4286
(46100 11600 4000 3100)					
20	2.83333	72.2789	.233333	.155556	8.92857
(8500 2500 600 900)					
21	0 0	0	0	0	
(0 0 0 0)					
22	.0333333	.85034	0	0	1.07143
(100 300 0 0)					
23	0 0	0	0	0	
(0 0 0 0)					
24	0 0	0	0	0	
(0 0 0 0)					
25	1.06667	27.2109	.35	.28	5
(3200 1400 400 500)					

```
        ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   54.46        1389.29        .0272374        .0190528      59.6572
SD 45.4777      1160.15                                      39.8755
SE 9.09554      232.029                                      7.9751
 26  16.5667  422.619           .0424242        .04           37.1429
( 49700  10400  3300  3500 )
 27  26.0333  664.116           .0304348        .0291667      51.4286
( 78100  14400  4600  4800 )
 28  52.6  1341.84              .0135922        .0150538      109.643
( 157800  30700  10300  9300 )
 29  20.8667  532.313           .0291667        .0291667      53.5714
( 62600  15000  4800  4800 )
 30  .866667  22.1088           1.4             1.4           1.42857
( 2600  400  100  100 )
 31  3.56667  90.9864           .155556         .233333       8.57143
( 10700  2400  900  600 )
 32  0  0       0               0               0
( 0  0  0  0 )
 33  .166667  4.2517            1.4             0             1.07143
( 500  300  100  0 )
 34  8.8  224.49                .0736842        .0823529      20.3571
( 26400  5700  1900  1700 )
 35  18.7667  478.742           .0237288        .0388889      56.4286
( 56300  15800  5900  3600 )
 36  .566667  14.4558           1.4             1.4           1.78571
( 1700  500  100  100 )
 37  4.5  114.796               .175            .233333       8.57143
( 13500  2400  800  600 )
 38  3.9  99.4898               .233333         .28           6.42857
( 11700  1800  600  500 )
 39  0  0       0               0               0
( 0  0  0  0 )
 40  3.43333  87.585            .127273         .127273       12.5
( 10300  3500  1100  1100 )
 41  22.4333  572.279           .0411765        .0666667      33.2143
( 67300  9300  3400  2100 )
 42  15.9  405.612              .127273         .155556       12.5
( 47700  3500  1100  900 )
 43  .0666667  1.70068          0               0             0
( 200  0  0  0 )
 44  0  0       0               0               0
( 0  0  0  0 )
 45  0  0       0               0               0
( 0  0  0  0 )
 46  .0666667  1.70068          0               0             0
( 200  0  0  0 )
 47  3.33333  85.034            .0777778        .127273       17.5
( 10000  4900  1800  1100 )
 48  .6  15.3061                .466667         1.4           2.85714
( 1800  800  300  100 )
 49  8.9  227.041               .0451613        .0823529      27.1429
( 26700  7600  3100  1700 )
 50  0  0       0               0               0
( 0  0  0  0 )
        ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   31.4687      802.772         .0405327        .0317748      39.0714
SD 40.4551      1032.02                                      39.3886
SE 5.72122      145.949                                      5.57038
```

DEFECTS IN SILICON(VERSION 2--5/5/79)
HEADING

SPEC A

?MRI 22 JPL 6-840 DISLOCATIONS ONLY 6-28-79
PRINT FILE NAME FOR STORAGE OF DATA(DX1:NAME)

AVERAGE FEATURE AREA(PP)

?6.5

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
?					
1	25.6923	1.31083E-03	443.038	27.3973	1.14286E-03
(167	160	158	2555)		
?					
2	125.077	6.38148E-03	95.3678	72.6141	5.47143E-03
(813	766	734	964)		
?					
3	158	8.06123E-03	103.093	81.2065	7.35000E-03
(1027	1029	679	862)		
?					
4	24.7692	1.26374E-03	486.111	1111.11	8.85714E-04
(161	124	144	63)		
?					
5	45.2308	2.30769E-03	222.93	191.257	2.11429E-03
(294	296	314	366)		
?					
6	83.5385	4.26217E-03	104.948	78.5634	4.32143E-03
(543	605	667	891)		
?					
7	40.4615	2.06436E-03	534.351	542.636	1.25000E-03
(263	175	131	129)		
?					
8	5.23077	2.66876E-04	3333.33	0	1.14286E-04
(34	16	21	0)		
?					
9	182.769	9.32496E-03	55.2923	55.1181	8.79286E-03
(1188	1231	1266	1270)		
?					
10	32.9231	1.67975E-03	269.231	228.013	1.79286E-03
(214	251	260	307)		
?					
11	16	8.16327E-04	729.167	673.077	1.05000E-03
(104	147	96	104)		
?					
12	1936.31	.0987912	5.58838	3.10215	.0897072
(12586	12559	12526	22565)		
?					
13	73.3846	3.74411E-03	274.51	272.374	2.03571E-03
(477	285	255	257)		
?					
14	465.231	.0237363	24.4413	21.9161	.0243
(3024	3402	2864	3194)		
?					
15	593.231	.0302669	19.5585	17.981	.0264929
(3856	3709	3579	3893)		
?					
16	109.385	5.58085E-03	93.7082	92.5926	5.90714E-03
(711	827	747	756)		
?					
17	958.769	.0489168	11.3195	10.8645	.0431714
(6232	6044	6184	6443)		
?					
18	111.231	5.67504E-03	99.8573	106.707	4.87857E-03
(723	683	701	656)		

```
?
 19  180.769  9.22292E-03     66.3507        64.1026        7.67857E-03
( 1175  1075  1055  1092 )
?
 20  40.6154  2.07221E-03     292.887        282.258        1.72143E-03
( 264  241  239  248 )
?
 21  142  7.24490E-03         92.8382        116.279        4.80000E-03
( 923  672  754  602 )
?
 22  238.154  .0121507        44.843         43.9698        .0123429
( 1548  1728  1561  1592 )
?
 23  294.769  .0150392        35.7508        35.6779        .0125714
( 1916  1760  1958  1962 )
?
 24  69.0769  3.52433E-03     144.628        147.992        3.32143E-03
( 449  465  484  473 )
?
 25  102.923  5.25118E-03     100.719        97.3574        4.70000E-03
( 669  658  695  719 )
?A
                    ***AVERAGE***
       NO.      NO./AREA        MFPV          MFPH          L/A
   242.222      .0123582       45.9655        33.6778       .0111166
SD 404.999      .0206632                                    .0187593
SE 80.9998      4.13264E-03                                 3.75186E-03
?
 26  214.154  .0109262        49.8221        49.54          9.96429E-03
( 1392  1395  1405  1413 )
?
 27  67.0769  3.42229E-03     159.453        157.658        2.97143E-03
( 436  416  439  444 )
?
 28  71.8462  3.66562E-03     142.276        137.525        3.51429E-03
( 467  492  492  509 )
?
 29  148.154  7.55887E-03     71.8686        77.5194        6.87143E-03
( 963  962  974  903 )
?
 30  209.692  .0106986        49.2611        53.7634        7.79286E-03
( 1363  1091  1421  1302 )
?
 31  400.615  .0204396        30.8642        29.0577        .0174714
( 2604  2446  2268  2409 )
?
 32  194.462  9.92151E-03     56.2249        53.7222        9.27857E-03
( 1264  1299  1245  1303 )
?
 33  252.154  .012865         44.9582        42.4757        .0107357
( 1639  1503  1557  1648 )
?
 34  213.846  .0109105        49.2264        50.2874        9.88572E-03
( 1390  1384  1422  1392 )
?
 35  800  .0408163            13.1505        13.3741        .0368286
( 5200  5156  5323  5234 )
?
 36  168.308  8.58713E-03     60.0858        59.6252        7.46429E-03
( 1094  1045  1165  1174 )
?
 37  308.154  .0157221        36.6876        36.1944        .0137071
( 2003  1919  1908  1934 )
```

?
38 209.077 .0106672 53.8462 45.8415 .0100071
(1359 1401 1300 1527)
?
39 175.077 8.93250E-03 61.296 60.0343 8.58571E-03
(1138 1202 1142 1166)
?
40 44 2.24490E-03 250.896 260.223 1.97857E-03
(286 277 279 269)
?
41 486.923 .024843 22.9058 23.7369 .022
(3165 3080 3056 2949)
?
42 357.077 .0182182 30.4745 28.9855 .0164071
(2321 2297 2297 2415)
?
43 64.9231 3.31240E-03 159.091 158.371 3.00714E-03
(422 421 440 442)
?
44 126.462 6.45212E-03 85.6793 86.2069 6.01429E-03
(822 842 817 812)
?
45 57.5385 2.93564E-03 183.246 192.308 2.68571E-03
(374 376 382 364)
?
46 54.6154 2.78650E-03 216.718 218.069 2.32143E-03
(355 325 323 321)
?
47 33.3846 1.70330E-03 322.581 353.535 1.58571E-03
(217 222 217 198)

AVERAGE # OF DISLOCATION pits/field - 256.57

AVERAGE # OF DISLOCATION PITS /μm^2 - .0129

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 23 JPL 6-840 SPEC B 6-29-79 DISLOCATIONS ONLY

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	110.5	5.63776E-03	197.183	213.415	7.71429E-03
(663	1080	355	328)		
2	116.833	5.96089E-03	161.29	176.322	8.05000E-03
(701	1127	434	397)		
3	382.333	.0195068	58.382	63.6943	.0255929
(2294	3583	1199	1099)		
4	181	9.23470E-03	196.078	208.955	.0110214
(1086	1543	357	335)		
5	14.1667	7.22789E-04	3181.82	3888.89	4.14286E-04
(85	58	22	18)		
6	3.33333	1.70068E-04	5384.61	0	3.07143E-04
(20	43	13	0)		
7	5.5	2.80612E-04	3043.48	2692.31	8.28572E-04
(33	116	23	26)		
8	71.3333	3.63946E-03	253.623	338.164	5.07857E-03
(428	711	276	207)		
9	319.5	.016301	68.1597	83.4326	.0225
(1917	3150	1027	839)		
10	52	2.65306E-03	334.928	492.958	4.67143E-03
(312	654	209	142)		
11	20.3333	1.03742E-03	769.231	1111.11	1.80714E-03
(122	253	91	63)		
12	13.3333	6.80272E-04	1707.32	1750	8.64286E-04
(80	121	41	40)		
13	128.167	6.53912E-03	153.509	186.667	9.02143E-03
(769	1263	456	375)		
14	60.6667	3.09524E-03	308.37	440.252	4.33572E-03
(364	607	227	159)		
15	183.667	9.37075E-03	116.279	136.452	.0115071
(1102	1611	602	513)		
16	55.1667	2.81463E-03	402.299	569.106	4.17143E-03
(331	584	174	123)		
17	202.667	.0103401	105.581	103.858	.01405
(1216	1967	663	674)		
18	37.8333	1.93027E-03	526.316	933.333	2.46429E-03
(227	345	133	75)		
19	182.333	9.30272E-03	137.255	115.894	.0110429
(1094	1546	510	604)		
20	174.667	8.91157E-03	165.485	130.841	.0130357
(1048	1825	423	535)		
21	378.5	.0193112	68.6948	81.8713	.0255143
(2271	3572	1019	855)		
22	19.5	9.94898E-04	2121.21	1590.91	1.16429E-03
(117	163	33	44)		
23	20.8333	1.06293E-03	1555.56	1428.57	1.03571E-03
(125	145	45	49)		
24	14.8333	7.56803E-04	1555.56	721.649	8.28572E-04
(89	116	45	97)		
25	57.1667	2.91667E-03	355.33	414.201	3.97143E-03
(343	556	197	169)		

```
                ********AVERAGE********
       NO.       NO./AREA          MFPV          MFPH          L/A
    112.247      5.72687E-03    204.105       225.341       7.63972E-03
 D  111.576      5.69266E-03                                 7.52514E-03
 E  22.3152      1.13853E-03                                 1.50503E-03
 26  11.1667  5.69728E-04    1521.74       2692.31       5.64286E-04
( 67  79  46  26 )
 27  60.8333  3.10374E-03    384.615       409.357       4.60000E-03
( 365  644  182  171 )
 28  151.833  7.74660E-03    170.732       159.091       8.15000E-03
( 911  1141  410  440 )
 29  18.6667  9.52381E-04    985.915       707.071       1.41429E-03
( 112  198  71  99 )
 30  32  1.63265E-03        853.658       700           1.48571E-03
( 192  208  82  100 )
 31  159.5  8.13776E-03      125           142.276       .0118929
( 957  1665  560  492 )
 32  22.6667  1.15646E-03    654.206       1000          1.84286E-03
( 136  258  107  70 )
 33  10.3333  5.27211E-04    1944.44       1707.32       1.15000E-03
( 62  161  36  41 )
 34  20  1.02041E-03        843.373       1206.9        1.36429E-03
( 120  191  83  58 )
 35  7.33333  3.74150E-04    3181.82       3500          5.21429E-04
( 44  73  22  20 )
 36  278.833  .0142262       78.7402       99.0099       .0173
( 1673  2422  889  707 )
 37  11.3333  5.78231E-04    2592.59       3500          5.71429E-04
( 68  80  27  20 )
 38  10.6667  5.44218E-04    3181.82       3888.89       4.71429E-04
( 64  66  22  18 )
 39  0  0       0            0             0
( 0  0  0  0 )
 40  8  4.08163E-04          2000          2692.31       9.42857E-04
( 48  132  35  26 )
 41  26.6667  1.36054E-03    985.915       1400          2.17143E-03
( 160  304  71  50 )
 42  0  0       0            0             0
( 0  0  0  0 )
 43  697.667  .0355952       38.5887       43.8048       .0442286
( 4186  6192  1814  1598 )
 44  *
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ORIGINAL PAGE IS
OF POOR QUALITY

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 23 JPL 6-840 SPEC B 6-29-79 TWINS ONLY

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2974

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	3028.35	77253.7	9.82008E-06	1.20525E-05	47862.1
(9.00630E+06	1.34014E+07	1.42565E+07	1.16158E+07)	FIELD DELETED	
1	0	0	0	0	
(0	0	0	0)		
2	0	0	0	0	
(0	0	0	0)		
3	0	0	0	0	
(0	0	0	0)		
4	4.50572	114.942	.0823529	.127273	16.4286
(13400	4600	1700	1100)		
5	1.37861	35.1687	.35	.35	5
(4100	1400	400	400)		
6	.235373	6.00442	1.4	1.4	.714286
(700	200	100	100)		
7	0	0	0	0	
(0	0	0	0)		
8	17.7875	453.763	.0341463	.035	46.4286
(52900	13000	4100	4000)		
9	29.5898	754.841	.0245614	.0215385	68.2143
(88000	19100	5700	6500)		
10	62.6429	1598.03	.0105263	.0111111	144.643
(186300	40500	13300	12600)		
11	70.2421	1791.89	.0132075	.0115702	130
(208900	36400	10600	12100)		
12	19.4351	495.794	.0269231	.0388889	48.9286
(57800	13700	5200	3600)		
13	.369872	9.43552	0	1.4	1.07143
(1100	300	0	100)		
14	30.5313	778.859	.0291667	.0259259	57.5
(90800	16100	4800	5400)		
15	58.6752	1496.82	.0132075	.0159091	110.357
(174500	30900	10600	8800)		
16	.0672495	1.71555	1.4	0	1.42857
(200	400	100	0)		
17	0	0	7.00000E-04	0	0
(0	0	200000	0)		
18	0	0	7.00000E-04	0	0
(0	0	200000	0)		
19	0	0	0	0	0
(0	0	0	0)		
20	2.89173	73.7686	.0823529	5.34964E-04	14.6429
(8600	4100	1700	261700)		
21	2.95898	75.4841	.1	.2	13.2143
(8800	3700	1400	700)		
22	73.4701	1874.24	1.22079E-04	3.18544E-04	42.5
(218500	11900	1.14680E+06	439500)	FIELD DELETED	
22	177.169	4519.61	2.32211E-04	3.29722E-04	46.7857
(526900	13100	602900	424600)	FIELD DELETED	
22	13.8534	353.403	.0368421	.04	41.7857
(41200	11700	3800	3500)		
23	23.033	587.575	.0191781	.0269231	76.7857
(68500	21500	7300	5200)		
24	46.1668	1177.72	.0122807	.0127273	126.429
(137300	35400	11400	11000)		

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25  1.84756   47.1776          .35              .28              5.35714
( 5500  1500  400  500 )
 26  2.15198  54.8976          .175             .233333          8.92857
( 6400  2500  800  600 )
 27  9.88568  252.186          .0933333         .0875            18.2143
( 29400  5100  1500  1600 )
            ********AVERAGE********
        NO.      NO./AREA        MFPV             MFPH             L/A
   14.7501       376.277         7.79542E-03      .011134          34.6693
SD 21.0181       536.177                                           45.0557
SE 4.04494       103.187                                           8.67097
 28  0  0         0               0                0
( 0  0  0  0 )
 29  18.3255  467.487          .0451613         .0466667         34.2857
( 54500  9600  3100  3000 )
 30  24.7478  631.322          8.91720E-03      .0147368         77.8571
( 73600  21800  15700  9500 )
 31  18.3255  467.487          .0482759         .0608696         30.7143
( 54500  8600  2900  2300 )
 32  20.2085  515.522          .027451          .0378378         49.2857
( 60100  13800  5100  3700 )
 33  3.3961  86.6352          .155556          .155556          10.7143
( 10100  3000  900  900 )
 34  39.61  1010.46           .0212121         .028             66.0714
( 117800  18500  6600  5000 )
 35  10.3564  264.194          .0411765         .0482759         36.4286
( 30800  10200  3400  2900 )
 36  2.01748  51.4665          .175             .35              6.78572
( 6000  1900  800  400 )
 37  2.95898  75.4841          .127273          .233333          9.64286
( 8800  2700  1100  600 )
 38  2.55548  65.1908          .466667          .233333          5
( 7600  1400  300  600 )
 39  .504371  12.8666          .7               1.4              2.14286
( 1500  600  200  100 )
 40  5.95158  151.826          .0777778         .127273          16.4286
( 17700  4600  1800  1100 )
 41  44.5192  1135.69          .0186667         .0181818         90.7143
( 132400  25400  7500  7700 )
 42  50.1009  1278.08          .0191781         .0197183         81.0714
( 149000  22700  7300  7100 )
 43  57.2629  1460.79          .0155556         .0225806         88.2143
( 170300  24700  9000  6200 )
 44  244.923  6248.03          9.09091E-03      .0145833         145.714
( 728400  40800  15400  9600 ) FIELD DELETED
 45  16.6106  423.741          .0264151         9.39597E-03      52.1429
( 49400  14600  5300  14900 )
 46  5.98521  152.684          .0875            .1               16.4286
( 17800  4600  1600  1400 )
 47  0  0       0               0                0
( 0  0  0  0 )
 48  15.4001  392.861          .0424242         .04375           50
( 45800  14000  3300  3200 )
 49  84.9697  2167.6           .0111111         .0138614         128.929
( 252700  36100  12600  10100 )
 50  5.14459  131.239          .07              .0875            20.3571
( 15300  5700  2000  1600 )
 51  16.8124  428.887          .0341463         .0451613         40.3571
( 50000  11300  4100  3100 )
            ********AVERAGE********
        NO.      NO./AREA        MFPV             MFPH             L/A
   16.8803       430.62          .0120794         .0164745         36.9929
SD 21.3723       545.212                                           40.6037
SE 3.0225        77.1047                                           5.74224
*
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 24 JPL 6-840 SPEC C TWINS ONLY 6-29-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 OTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3286

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	0	0	0	0	
(0	0	0	0)		
2	0	0	0	0	
(0	0	0	0)		
7	240.079	6124.47	1.31086E-03	1.82529E-03	1156.07
(788900	323700	106800	76700) FIELD DELETED		
3	26.0499	664.539	.0181818	9.07912E-04	80.3572
(85600	22500	7700	154200)		
4	42.4528	1082.98	.0186667	.0186667	82.8571
(139500	23200	7500	7500)		
5	38.9531	993.703	.0157303	.0179487	93.2143
(128000	26100	8900	7800)		
6	0	0	0	0	
(0	0	0	0)		
7	106.543	2717.93	.01	.0164706	128.929
(350100	36100	14000	8500)		
8	123.128	3141.03	.233333	.35	5.35714
(404600	1500	600	400) FIELD DELETED		
8	43.8223	1117.92	.0141414	.0197183	97.1429
(144000	27200	9900	7100)		
9	1.91722	48.9088	.233333	.233333	7.85714
(6300	2200	600	600)		
10	44.9787	1147.42	.0233333	.0378378	57.1429
(147800	16000	6000	3700)		
11	74.437	1898.9	8.53658E-03	.0164706	146.429
(244600	41000	16400	8500)		
12	107.152	2733.46	9.03226E-03	.0172839	111.071
(352100	31100	15500	8100)		
13	0	0	0	0	
(0	0	0	0)		
14	15.6117	398.257	.021875	.0341463	57.1429
(51300	16000	6400	4100)		
15	2.98235	76.0804	.0736842	.14	14.2857
(9800	4000	1900	1000)		
16	12.0816	308.203	.0237288	1.92308E-03	52.1429
(39700	14600	5900	72800)		
17	19.507	497.628	4.74576E-03	.027451	84.6429
(64100	23700	29500	5100)		
18	45.9221	1171.48	6.36364E-03	.012844	200.357
(150900	56100	22000	10900)		
19	33.7492	860.95	.0116667	.0191781	108.929
(110900	30500	12000	7300)		
20	18.5027	472.009	.0177215	.0285714	74.2857
(60800	20800	7900	4900)		
21	17.6811	451.048	1.30112E-03	.0285714	71.7857
(58100	20100	107600	4900)		
22	35.3013	900.543	1.75703E-04	1.27505E-03	153.214
(116000	42900	796800	109800)		
23	22.0329	562.063	.0157303	.0229508	86.7857
(72400	24300	8900	6100)		
24	13.238	337.704	.0608696	.0636364	25
(43500	7000	2300	2200)		

```
 25   0   0        0                0                0
( 0   0   0   0 )
              ********AVERAGE********
        NO.       NO./AREA         MFPV             MFPH            L/A
   28.9166       737.669         3.21780E-03      8.04413E-03     69.3429
SD 29.6672       756.817                                          53.8996
SE 5.93344       151.363                                          10.7799
 26  35.3621   902.096          .0194444         .0264151        72.8572
( 116200  20400  7200  5300 )
 27  3.65186   93.1596          .7               .466667         3.57143
( 12000  1000  200  300 )
 28   0   0        0                0                0
( 0   0   0   0 )
 29   0   0        0                0                0
( 0   0   0   0 )
 30   0   0        0                0                0
( 0   0   0   0 )
 31   0   0        0                0                0
( 0   0   0   0 )
 32   0   0        0                0                0
( 0   0   0   0 )
 33  .182593   4.65798          1.4              1.4             1.42857
( 600  400  100  100 )
 34  3.80402   97.0413          .116667          .14             12.1429
( 12500  3400  1200  1000 )
 35   0   0        0                0                0
( 0   0   0   0 )
 36   0   0        0                0                0
( 0   0   0   0 )
 37   0   0        0                0                0
( 0   0   0   0 )
 38   0   0        0                0                0
( 0   0   0   0 )
 39   0   0        0                0                0
( 0   0   0   0 )
 40  1.03469   26.3952          .35              1.39442E-03     5.35714
( 3400  1500  400  100400 )
 41  1.21729   31.0532          .233333          .28             6.42857
( 4000  1800  600  500 )
 42  8.46013   215.82           .175             .2              8.57143
( 27800  2400  800  700 )
 43  15.3987   392.823          .0411765         .0666667        32.1429
( 50600  9000  3400  2100 )
 44  2.70846   69.0934          .116667          .155556         10.7143
( 8900  3000  1200  900 )
 45  15.0639   384.283          .035             .035            44.2857
( 49500  12400  4000  4000 )
 46  .365186   9.31596          1.4              1.4             1.42857
( 1200  400  100  100 )
 47  1.91722   48.9088          .14              .175            9.28572
( 6300  2600  1000  800 )
 48  .273889   6.98697          1.4              0               1.07143
( 900  300  100  0 )
 49  1.73463   44.2508          .175             .35             7.14286
( 5700  2000  800  400 )
 50  3.43883   87.7253          .116667          .127273         12.5
( 11300  3500  1200  1100 )
              ********AVERAGE********
        NO.       NO./AREA         MFPV             MFPH            L/A
   16.3506       417.107         6.30631E-03      .0126628        39.25
SD 25.0533       639.114                                          49.9663
SE 3.54307       90.3844                                          7.06631
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 24 JPL 6-840 SPEC C DISLOCATIONS ONLY 6-29-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 8.3

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	11.6867	5.96263E-04	1842.11	1372.55	1.04286E-03
(97	146	38	51)		
2	12.5301	6.39292E-04	1060.61	1014.49	1.53571E-03
(104	215	66	69)		
3	47.3494	2.41579E-03	642.202	693.069	2.27143E-03
(393	318	109	101)	FIELD DELETED	
3	51.2048	2.61249E-03	350	294.118	4.72143E-03
(425	661	200	238)		
4	11.9277	6.08557E-04	1428.57	1458.33	1.16429E-03
(99	163	49	48)		
5	24.3374	1.24170E-03	945.946	1166.67	1.27857E-03
(202	179	74	60)		
6	14.6988	7.49939E-04	972.222	985.915	1.57143E-03
(122	220	72	71)		
7	5.18072	2.64323E-04	4375	4666.67	3.64286E-04
(43	51	16	15)		
8	8.07229	4.11852E-04	2500	2413.79	4.71429E-04
(67	66	28	29)		
9	27.5904	1.40767E-03	958.904	721.649	1.78571E-03
(229	250	73	97)		
10	0	0	0	0	0
(0	0	0	0)		
11	0	0	0	0	0
(0	0	0	0)		
12	0	0	0	0	0
(0	0	0	0)		
13	220.723	.0112614	82.0633	208.333	.0141714
(1832	1984	853	336)		
14	.843374	4.30293E-05	17500	0	6.42857E-05
(7	9	4	0)		
15	942.53	.0480883	21.4856	50.6146	.0560286
(7823	7844	3258	1383)		
16	843.494	.0430354	27.2692	67.5676	.0429714
(7001	6016	2567	1036)		
17	128.434	6.55274E-03	102.339	245.614	.0114929
(1066	1609	684	285)		
18	289.036	.0147467	79.9087	191.257	.0134429
(2399	1882	876	366)		
19	.843374	4.30293E-05	10000	0	0
(7	0	7	0)		
20	0	0	0	0	0
(0	0	0	0)		
21	127.59	6.50971E-03	155.556	351.759	7.95714E-03
(1059	1114	450	199)		
22	0	0	0	0	0
(0	0	0	0)		
23	436.868	.0222892	42.735	105.105	.02675
(3626	3745	1638	666)		
24	616.868	.0314728	35.2467	89.7436	.0357857
(5120	5010	1986	780)		
25	699.398	.0356836	31.8616	74.4681	.0377643
(5805	5287	2197	940)		

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        ********AVERAGE********
      NO.      NO./AREA       MFPV          MFPH          L/A
   178.954     9.13032E-03   115.618       262.408       .0104146
SD 284.923     .0145369                                  .0158848
SE 56.9845     2.90737E-03                               3.17696E-03
 26  90.3615  4.61028E-03    167.064       434.783       7.05714E-03
( 750  988  419  161 )
 27  485.181  .0247541       34.5508       102.489       .0359571
( 4027  5034  2026  683 )
 28  0  0      0             0             0
( 0  0  0  0 )
 29  160.964  8.21244E-03    100.719       319.635       .0122714
( 1336  1718  695  219 )
 30  227.952  .0116302       107.362       305.677       .0117071
( 1892  1639  652  229 )
 31  0  0      0             0             0
( 0  0  0  0 )
 32  8.6747  4.42587E-04     2058.82       4375          7.42857E-04
( 72  104  34  16 )
 33  24.3374  1.24170E-03    813.953       1346.15       2.32857E-03
( 202  326  86  52 )
 34  0  0      0             0             0
( 0  0  0  0 )
 35  18.7952  9.58938E-04    813.953       2058.82       1.65714E-03
( 156  232  86  34 )
 36  6.62651  3.38087E-04    1944.44       5384.61       7.64286E-04
( 55  107  36  13 )
 37  7.46988  3.81116E-04    1794.87       6363.64       5.00000E-04
( 62  70  39  11 )
 38  106.024  5.40939E-03    141.988       384.615       9.11429E-03
( 880  1276  493  182 )
 39  15.3012  7.80674E-04    804.598       2058.82       1.53571E-03
( 127  215  87  34 )
 40  277.711  .0141689       63.5209       169.492       .0190143
( 2305  2662  1102  413 )
 41  127.229  6.49127E-03    122.807       265.151       9.95714E-03
( 1056  1394  570  264 )
 42  70.6024  3.60216E-03    207.101       560           5.87857E-03
( 586  823  338  125 )
 43  147.952  7.54856E-03    95.6284       254.545       .0127929
( 1228  1791  732  275 )
 44  159.639  8.14483E-03    84.4391       219.436       .0133714
( 1325  1872  829  319 )
 45  59.0362  3.01205E-03    210.843       625           5.51429E-03
( 490  772  332  112 )
 46  68.1928  3.47922E-03    222.222       636.364       5.05000E-03
( 566  707  315  110 )
 47  115.904  5.91345E-03    116.279       299.145       .0102857
( 962  1440  602  234 )
 48  49.8795  2.54487E-03    229.508       729.167       4.83571E-03
( 414  677  305  96 )
 49  22.1687  1.13106E-03    777.778       1750          2.20000E-03
( 184  308  90  40 )
 50  79.759  4.06934E-03     215.385       614.035       5.26429E-03
( 662  737  325  114 )
        ********AVERAGE********
      NO.      NO./AREA       MFPV          MFPH          L/A
   136.072     6.94247E-03   138.182       336.377       8.76329E-03
SD 219.771     .0112128                                  .012618
SE 31.0803     1.58573E-03                               1.78445E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 25 JPL 6-840 SPEC D TWINS ONLY 6-29-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2500

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
Σ	836.04	21327.6	5.36645E-05	6.42880E-05	8711.79
(2.09010E+06	2.43930E+06	2.60880E+06	2.17770E+06)	FIELD DELETED	
1	7.4	188.776	.0823529	.1	17.1429
(18500	4800	1700	1400)		
2	0	0	0	0	
(0	0	0	0)		
3	25.68	655.102	.0297872	.0325581	51.4286
(64200	14400	4700	4300)		
4	67.44	1720.41	.0177215	.0141414	101.071
(168600	28300	7900	9900)		
5	70.84	1807.14	.0179487	.012963	109.643
(177100	30700	7800	10800)		
6	66.76	1703.06	.0159091	.0132075	108.571
(166900	30400	8800	10600)		
7	88.28	2252.04	.0184211	.0181818	88.5714
(220700	24800	7600	7700)		
8	74.6	1903.06	.0233333	.0168675	79.6429
(186500	22300	6000	8300)		
9	88.12	2247.96	.0175	.014433	101.429
(220300	28400	8000	9700)		
10	109.36	2789.8	.0259259	.0164706	81.0714
(273400	22700	5400	8500)		
11	95.24	2429.59	.0225806	.0237288	72.5
(238100	20300	6200	5900)		
12	59.04	1506.12	.0233333	.0189189	361.429
(147600	101200	6000	7400)		
13	60.52	1543.88	.02	1.29991E-03	81.7857
(151300	22900	7000	107700)		
14	81.04	2067.35	.0181818	.0145833	101.786
(202600	28500	7700	9600)		
15	93.84	2393.88	.0189189	.0134615	102.143
(234600	28600	7400	10400)		
16	134.88	3440.82	.0241379	.0194444	78.2143
(337200	21900	5800	7200)		
17	118	3010.2	.0155556	.0134615	114.286
(295000	32000	9000	10400)		
18	42.96	1095.92	.175	.1	13.2143
(107400	3700	800	1400)		
19	4.44	113.265	.0583333	1.38751E-03	22.5
(11100	6300	2400	100900)		
20	30.88	787.755	.0736842	.0583333	25.7143
(77200	7200	1900	2400)		
21	24.28	619.388	.0237288	.0269231	62.5
(60700	17500	5900	5200)		
22	3.2	81.6327	.107692	.175	120.357
(8000	33700	1300	800)		
23	110.48	2818.37	.0666667	.0482759	30
(276200	8400	2100	2900)		
24	148.68	3792.86	.0451613	.0411765	38.5714
(371700	10800	3100	3400)		
25	114.36	2917.35	.02	.0137255	97.8571
(285900	27400	7000	10200)		

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          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   68.8128      1755.43        .026616       9.80392E-03    82.4571
SD 41.9325      1069.71                                     67.0159
SE 8.38649      213.941                                     13.4032
 26  121.04  3087.76           .0191781       .0118644       107.5
( 302600  30100  7300  11800 )
 27  44.96  1146.94            .0304348       .0205882       63.5714
( 112400  17800  4600  6800 )
 28  123.72  3156.12           .0378378       .0333333       46.7857
( 309300  13100  3700  4200 )
 29  89.6  2285.71             .028           .0194444       70
( 224000  19600  5000  7200 )
 30  4.88  124.49              .14            .155556        10.7143
( 12200  3000  1000  900 )
 31  29.68  757.143            .233333        .116667        10.7143
( 74200  3000  600  1200 )
 32  8.72  222.449             .175           .127273        12.1429
( 21800  3400  800  1100 )
 33  0  0       0              0              0
( 0  0  0  0 )
 34  9.68  246.939             .155556        .127273        11.0714
( 24200  3100  900  1100 )
 35  0  0       0              0              0
( 0  0  0  0 )
 36  0  0       0              0              0
( 0  0  0  0 )
 37  0  0       0              0              0
( 0  0  0  0 )
 38  49.6  1265.31             .028           .0285714       57.8571
( 124000  16200  5000  4900 )
 39  20.04  511.225            .0482759       .0482759       32.8571
( 50100  9200  2900  2900 )
 40  9.92  253.061             .0933333       .0225806       15
( 24800  4200  1500  6200 )
 41  6.08  155.102             .155556        .175           11.7857
( 15200  3300  900  800 )
 42  13.6  346.939             .0736842       .056           23.5714
( 34000  6600  1900  2500 )
 43  8.52  217.347             .07            .1             19.6429
( 21300  5500  2000  1400 )
 44  .4  10.2041               .7             0              2.5
( 1000  700  200  0 )
 45  30.92  788.776            .0341463       .05            41.4286
( 77300  11600  4100  2800 )
 46  108.2  2760.2             .0212121       .016092        86.7857
( 270500  24300  6600  8700 )
 47  9.44  240.816             .0933333       .056           22.8571
( 23600  6400  1500  2500 )
 48  4.28  109.184             .2             .155556        9.28572
( 10700  2600  700  900 )
 49  .52  13.2653              1.4            0              2.14286
( 1300  600  100  0 )
 50  14.8  377.551             .0875          .0933333       18.9286
( 37000  5300  1600  1500 )
 50  79.04  2016.33            .0259259       .0166667       76.4286
( 197600  21400  5400  8400 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   49.8632      1272.02        .0371945       .0161551       55.9214
SD 45.028       1148.67                                     58.3994
SE 6.36792      162.447                                     8.25893
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 25 JPL 6-840 SPEC SPEC D 6-29-79 DISLOCATIONS ONLY

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 10.5

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	0	0	0	0	
(0	0	0	0)		
2	0	0	0	0	
(0	0	0	0)		
3	841.619	.0429398	642.202	2592.59	5.75714E-03
(8837	806	109	27) FIELD DELETED		
3	1.2381	6.31681E-05	2500	1794.87	2.21429E-04
(13	31	28	39)		
4	31.7143	1.61808E-03	372.34	1111.11	3.49286E-03
(333	489	188	63)		
5	3.52381	1.79786E-04	2187.5	7000	3.64286E-04
(37	51	32	10)		
6	4.09524	2.08941E-04	1944.44	6363.64	6.28571E-04
(43	88	36	11)		
7	0	0	0	0	
(0	0	0	0)		
8	2.19048	1.11759E-04	7000	35000	2.85714E-04
(23	40	10	2)		
9	0	0	0	0	
(0	0	0	0)		
10	0	0	0	0	
(0	0	0	0)		
11	248.952	.0127017	67.3077	75.188	.0211643
(2614	2963	1040	931)		
12	0	0	0	0	
(0	0	0	0)		
13	0	0	0	0	
(0	0	0	0)		
14	145.714	7.43440E-03	128.676	133.588	.0115357
(1530	1615	544	524) FIELD DELETED		
14	0	0	0	0	
(0	0	0	0)		
15	0	0	0	0	
(0	0	0	0)		
16	0	0	0	0	
(0	0	0	0)		
17	7.80952	3.98445E-04	1206.9	4117.65	9.07143E-04
(82	127	58	17)		
18	46.2857	2.36152E-03	146.444	443.038	6.78572E-03
(486	950	478	158)		
19	0	0	0	0	
(0	0	0	0)		
20	0	0	0	0	
(0	0	0	0)		
21	194.19	9.90768E-03	87.7193	212.121	.0157429
(2039	2204	798	330)		
22	0	0	0	0	
(0	0	0	0)		
23	16.6667	8.50340E-04	1272.73	1428.57	4.78571E-04
(175	67	55	49)		
24	39.4286	2.01166E-03	252.708	752.688	4.48571E-03
(414	628	277	93)		

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 25  182.667   9.31973E-03     82.3529         179.487         .0155786
( 1918  2181   850   390 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH            L/A
    31.1505      1.58931E-03    454.545         836.12          2.80543E-03
SD  67.49        3.44337E-03                                    5.73332E-03
SE  13.498       6.88674E-04                                    1.14666E-03
 26  136.19   6.94849E-03     151.188         218.069         .0106786
( 1430  1495   463   321 )
 27  109.429   5.58309E-03     98.4529         204.678         .0120286
( 1149  1684   711   342 )
 28  65.8095   3.35763E-03     161.29          151.515         .0115071
( 691  1611   434   462 )
 29  0  0        0               0               0
( 0  0  0  0 )
 30  0  0        0               0               0
( 0  0  0  0 )
 31  0  0        0               0               0
( 0  0  0  0 )
 32  0  0        0               0               0
( 0  0  0  0 )
 33  0  0        0               0               0
( 0  0  0  0 )
 34  0  0        0               0               0
( 0  0  0  0 )
 35  0  0        0               0               0
( 0  0  0  0 )
 36  0  0        0               0               0
( 0  0  0  0 )
 37  50.1905   2.56074E-03     231.023         280             5.78571E-03
( 527  810   303   250 )
 38  3.42857   1.74927E-04     4666.67         5384.61         3.64286E-04
( 36  51  15  13 )
 39  55.3333   2.82313E-03     205.279         205.882         7.15000E-03
( 581  1001   341   340 )
 40  43.7143   2.23032E-03     210.21          201.729         6.50714E-03
( 459  911  333  347 )
 41  28.1905   1.43829E-03     331.754         360.825         4.60000E-03
( 296  644  211  194 )
 42  102.571   5.23324E-03     149.254         157.303         .0115
( 1077  1610   469   445 )
 43  0  0        0               0               0
( 0  0  0  0 )
 44  0  0        0               0               0
( 0  0  0  0 )
 45  17.619   8.98931E-04     476.19          625             2.55714E-03
( 185  358  147  112 )
 46  0  0        0               0               0
( 0  0  0  0 )
 47  11.619   5.92809E-04     945.946         2500            1.15714E-03
( 122  162  74  28 )
 48  0  0        0               0               0
( 0  0  0  0 )
 49  0  0        0               0               0
( 0  0  0  0 )
 50  3.33333   1.70068E-04     4375            5833.33         5.85714E-04
( 35  82  16  12 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH            L/A
    28.1238      1.43489E-03    475.092         705.787         2.89114E-03
SD  55.2654      2.81966E-03                                    5.06051E-03
SE  7.8157       3.98760E-04                                    7.15663E-04
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 26 JPL 6-840 SPEC E 6-30-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2700

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	339.074	8649.85	2.28945E-04	1.67124E-04	304.286
(915500	85200	611500	837700)		FIELD DELETED
1	0	0	0	0	
(0	0	0	0)		
2	11.037	281.557	.0823529	.0451613	26.7857
(29800	7500	1700	3100)		
3	20.3333	518.708	.0583333	.0368421	34.6429
(54900	9700	2400	3800)		
4	29.9259	763.417	.0368421	.0285714	48.9286
(80800	13700	3800	4900)		
5	30.9259	788.927	.0197183	.0264151	68.5714
(83500	19200	7100	5300)		
6	49.8889	1272.68	.0132075	.0145833	112.5
(134700	31500	10600	9600)		
7	11.9259	304.233	.116667	.0875	16.0714
(32200	4500	1200	1600)		
8	4.96296	126.606	.233333	.155556	8.92857
(13400	2500	600	900)		
9	4.74074	120.937	.127273	.0736842	16.7857
(12800	4700	1100	1900)		
10	43	1096.94	.0202899	.012069	105
(116100	29400	6900	11600)		
11	56.4815	1440.85	.0222222	.0150538	88.5714
(152500	24800	6300	9300)		
12	52.1481	1330.31	.0254545	.0157303	82.8571
(140800	23200	5500	8900)		
13	61.963	1580.69	.0177215	.0127273	106.071
(167300	29700	7900	11000)		
14	50.037	1276.46	.02	.0138614	95
(135100	26600	7000	10100)		
15	88.4815	2257.18	.0181818	.0164706	96.0714
(238900	26900	7700	8500)		
16	78.8148	2010.58	.0184211	.012963	105
(212800	29400	7600	10800)		
17	62.0741	1583.52	.0186667	.0162791	90.7143
(167600	25400	7500	8600)		
18	72.3704	1846.18	.0205882	.0155556	90.3571
(195400	25300	6800	9000)		
19	33.1852	846.561	.0291667	.0205882	66.4286
(89600	18600	4800	6800)		
20	81.1852	2071.05	.0411765	.0237288	54.6429
(219200	15300	3400	5900)		
21	34.7407	886.243	.0259259	.02	69.6429
(93800	19500	5400	7000)		
22	37.7778	963.719	.0451613	.0245614	50.3571
(102000	14100	3100	5700)		
23	67.6667	1726.19	.0538461	.0311111	41.4286
(182700	11600	2600	4500)		
24	2.92593	74.641	.233333	.127273	10.7143
(7900	3000	600	1100)		
25	2.55556	65.1927	.7	.233333	5
(6900	1400	200	600)		

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 26  16.9259  431.784          .0482759        .0666667        28.5714
( 45700  8000  2900  2100 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH          L/A
    38.6952       987.122        .031735        .0238532       58.4478
SD  26.7288       681.857                                      35.9415
SE  5.24194       133.723                                      7.0487
 27  2.96296  75.5858          .28             .155556         8.92857
( 8000  2500  500  900 )
 28  4.37037  111.489          .233333         .107692         10.3571
( 11800  2900  600  1300 )
 29  2.11111  53.8549          .35             .466667         5.35714
( 5700  1500  400  300 )
 30  .518519  13.2275          1.4             .7              1.78571
( 1400  500  100  200 )
 31  .111111  2.83447          0               0               0
( 300  0  0  0 )
 32  0  0        0               0               0
( 0  0  0  0 )
 33  0  0        0               0               0
( 0  0  0  0 )
 34  32.5556  830.499          .0304348        .0225806        58.5714
( 87900  16400  4600  6200 )
 35  0  0        0               0               0
( 0  0  0  0 )
 36  0  0        0               0               0
( 0  0  0  0 )
 37  0  0        0               0               0
( 0  0  0  0 )
 38  2.07407  52.9101          .466667         .35             4.28571
( 5600  1200  300  400 )
 39  5.07407  129.441          .466667         .233333         5.35714
( 13700  1500  300  600 )
 40  0  0        0               0               0
( 0  0  0  0 )
 41  0  0        0               0               0
( 0  0  0  0 )
 42  0  0        0               0               0
( 0  0  0  0 )
 43  0  0        0               0               0
( 0  0  0  0 )
 44  0  0        0               0               0
( 0  0  0  0 )
 45  50.6667  1292.52          .0304348        .0197183        66.4286
( 136800  18600  4600  7100 )
 46  24.5556  626.417          .07             .0341463        33.5714
( 66300  9400  2000  4100 )
 47  0  0        0               0               0
( 0  0  0  0 )
 48  4.59259  117.158          .155556         .0823529        14.6429
( 12400  4100  900  1700 )
 49  6.85185  174.792          .155556         .0875           14.2857
( 18500  4000  900  1600 )
 50  .111111  2.83447          0               0               0
( 300  0  0  0 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH          L/A
    22.8526       582.974        .0538876        .039548        34.8643
SD  26.741        682.167                                      37.7585
SE  3.78174       96.473                                       5.33986
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ORIGINAL PAGE IS
OF POOR QUALITY

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 26 JPL 6-840 SPEC E DISLOCATIONS ONLY 6-30-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 7.2

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	15.2778	7.79479E-04	945.946	1707.32	1.37857E-03
(110	193	74	41)		
2	293.889	.0149943	91.7431	204.082	.0150214
(2116	2103	763	343)		
3	527.222	.0268991	48.7465	115.894	.0231714
(3796	3244	1436	604)		
4	161.667	8.24830E-03	121.107	280	.0103071
(1164	1443	578	250)		
5	24.7222	1.26134E-03	769.231	1590.91	2.08571E-03
(178	292	91	44)		
6	51.8056	2.64314E-03	388.889	886.076	2.84286E-03
(373	398	180	79)		
7	152.361	7.77353E-03	117.845	380.435	.0104643
(1097	1465	594	184)		
8	54.3056	2.77069E-03	555.555	744.681	2.51429E-03
(391	352	126	94)		
9	216.667	.0110544	88.8325	230.263	.0137786
(1560	1929	788	304)		
10	308.611	.0157455	64.1026	144.628	.01825
(2222	2555	1092	484)		
11	.833333	4.25170E-05	0	35000	5.71429E-05
(6	8	0	2)		
12	0	0	0	0	
(0	0	0	0)		
13	312.361	.0159368	74.7863	185.185	.0156714
(2249	2194	936	378)		
14	429.444	.0219104	74.2312	58.6756	.0223
(3092	3122	943	1193)		
15	0	0	0	0	
(0	0	0	0)		
16	0	0	0	0	
(0	0	0	0)		
17	0	0	0	0	
(0	0	0	0)		
18	10.8333	5.52721E-04	2800	2187.5	6.92857E-04
(78	97	25	32)		
19	131.389	6.70352E-03	205.279	136.452	.0114429
(946	1602	341	513)		
20	299.167	.0152636	70.5645	67.6983	.0221571
(2154	3102	992	1034)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	92.9167	4.74065E-03	376.344	253.623	5.01429E-03
(669	702	186	276)		
24	48.75	2.48725E-03	370.37	395.48	4.04286E-03
(351	566	189	177)		
25	11.9444	6.09411E-04	1590.91	1521.74	1.15000E-03
(86	161	44	46)		

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          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   125.767      6.41667E-03   186.607       287.924       7.29372E-03
SD 150.591      7.68322E-03                               7.99990E-03
SE 30.1182      1.53664E-03                               1.59998E-03
 26  57.5  2.93367E-03        261.194       288.066       5.20714E-03
( 414  729  268  243 )
 27  24.1667  1.23299E-03     921.053       769.231       1.95000E-03
( 174  273  76  91 )
 28  20.2778  1.03458E-03     833.333       786.517       1.90000E-03
( 146  266  84  89 )
 29  0  0       0             0             0
( 0  0  0  0 )
 30  248.333  .0126701        82.3529       92.1053       .01825
( 1788  2555  850  760 )
 31  68.0556  3.47222E-03     299.145       322.581       5.32857E-03
( 490  746  234  217 )
 32  50.4167  2.57228E-03     321.101       391.061       4.57857E-03
( 363  641  218  179 )
 33  75.5556  3.85488E-03     258.303       235.69        6.98572E-03
( 544  978  271  297 )
 34  74.5833  3.80527E-03     243.902       271.318       6.07143E-03
( 537  850  287  258 )
 35  40.2778  2.05499E-03     437.5         395.48        3.87857E-03
( 290  543  160  177 )
 36  0  0       0             0             0
( 0  0  0  0 )
 37  46.3889  2.36678E-03     346.535       357.143       4.59286E-03
( 334  643  202  196 )
 38  163.472  8.34042E-03     115.512       120.898       .0109214
( 1177  1529  606  579 )
 39  42.2222  2.15420E-03     593.22        432.099       3.16429E-03
( 304  443  118  162 )
 40  22.0833  1.12670E-03     1372.55       1627.91       1.02143E-03
( 159  143  51  43 )
 41  63.3333  3.23129E-03     313.901       378.378       4.71429E-03
( 456  660  223  185 )
 42  124.444  6.34921E-03     131.827       139.442       .0112429
( 896  1574  531  502 )
 43  152.083  7.75936E-03     120.898       122.807       .0125357
( 1095  1755  579  570 )
 44  147.361  7.51843E-03     107.692       125.673       .0127143
( 1061  1780  650  557 )
 45  39.4444  2.01247E-03     469.799       460.526       3.62143E-03
( 284  507  149  152 )
 46  164.861  8.41128E-03     101.597       118.443       .01165
( 1187  1631  689  591 )
 47  56.5278  2.88407E-03     391.061       319.635       5.02143E-03
( 407  703  179  219 )
 48  21.9444  1.11961E-03     636.364       813.953       2.16429E-03
( 158  303  110  86 )
 49  109.028  5.56264E-03     150.538       165.094       9.62857E-03
( 785  1348  465  424 )
 50  113.889  5.81066E-03     170.732       164.319       9.30714E-03
( 820  1303  410  426 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV          MFPH          L/A
   101.408      5.17390E-03   208.482       267.564       6.77586E-03
SD 117.217      5.98044E-03                               6.52515E-03
SE 16.5769      8.45762E-04                               9.22795E-04
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 27 JPL 6-840 SPEC F TWINS ONLY 6-30-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2778

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	153.528	3916.52	1.63361E-03	2.65655E-03	117.857
(426500	33000	85700	52700)		
2	107.307	2737.43	.0147368	.0135922	112.143
(298100	31400	9500	10300)		
3	136.141	3472.99	9.92908E-03	7.52688E-03	185
(378200	51800	14100	18600)		
4	134.053	3419.73	.0101449	7.73481E-03	182.5
(372400	51100	13800	18100)		
5	5.79554	147.845	.0666667	.0482759	43.9286
(16100	12300	2100	2900)		
6	2.19582	56.0159	.127273	.107692	13.5714
(6100	3800	1100	1300)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	27.2498	695.149	.035	.0264151	50
(75700	14000	4000	5300)		
11	.25198	6.42806	1.4	.7	2.14286
(700	600	100	200)		
12	3.7077	94.5843	.7	0	1.42857
(10300	400	200	0)		
13	6.08351	155.192	.14	.107692	12.5
(16900	3500	1000	1300)		
14	260.079	6634.67	.0518518	1.38135E-04	573.214 FIELD DELETED
(722500	160500	2700	1.01350E+06)		
14	483.729	12340	2.50806E-04	7.47225E-05	993.214 FIELD DELETED
(1.34380E+06	278100	558200	1.87360E+06)		
14	51.0439	1302.14	.0148936	.0237288	88.2143
(141800	24700	9400	5900)		
15	39.4528	1006.45	.0175	.025	77.1429
(109600	21600	8000	5600)		
16	51.6559	1317.75	.0132075	.0194444	65.7143
(143500	18400	10600	7200)		
17	34.8452	888.909	.0164706	.0241379	80.3572
(96800	22500	8500	5800)		
18	12.599	321.403	.0666667	.07	22.5
(35000	6300	2100	2000)		
19	9.61123	245.184	.0608696	.0583333	26.0714
(26700	7300	2300	2400)		
20	13.067	333.341	.04375	.056	34.6429
(36300	9700	3200	2500)		
21	11.0871	282.835	.0333333	.0424242	57.8571
(30800	16200	4200	3300)		
22	23.1821	591.381	.04	.0378378	39.2857
(64400	11000	3500	3700)		
23	33.6573	858.605	.0166667	.0205882	90
(93500	25200	8400	6800)		
24	17.9986	459.147	.0388889	.0341463	42.8571
(50000	12000	3600	4100)		

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 25  41.2887  1053.28          .0269231        .0318182        55.3571
( 114700  15500  5200  4400 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH           L/A
   36.6321        934.492         .0174477        .0212895       56.0429
SD 45.2383        1154.04                                        51.0062
SE 9.04766        230.808                                        10.2012
 26  36.6091  933.905          .0145833        .0212121        88.9286
( 101700  24900  9600  6600 )
 27  58.9273  1503.25          .0102941        .0177215        127.143
( 163700  35600  13600  7900 )
 28  46.4003  1183.68          .0184211        9.65517E-03     71.0714
( 128900  19900  7600  14500 )
 29  46.4003  1183.68          .0318182        .0608696        201.429
( 128900  56400  4400  2300 )
 30  4.39165  112.032          .0666667        .127273         20.7143
( 12200  5800  2100  1100 )
 31  24.478  624.44            .0636364        .0933333        22.5
( 68000  6300  2200  1500 )
 32  45.2844  1155.21          .0333333        .0518518        43.9286
( 125800  12300  4200  2700 )
 33  10.3312  263.55           .0451613        1.74520E-04     28.5714
( 28700  8000  3100  802200 )
 34  7.09143  180.904          .155556         .155556         10.3571
( 19700  2900  900  900 )
 35  .0719942  1.83659         0               0               .357143
( 200  100  0  0 )
 36  0  0       0               0               0
( 0  0  0  0 )
 37  0  0       0               0               0
( 0  0  0  0 )
 38  .50396  12.8561           1.4             1.4             1.07143
( 1400  300  100  100 )
 39  .431965  11.0195          .7              1.4             2.14286
( 1200  600  200  100 )
 40  0  0       0               0               0
( 0  0  0  0 )
 41  0  0       0               0               0
( 0  0  0  0 )
 42  3.59971  91.8294          0               0               0
( 10000  0  0  0 )
 43  .25198  6.42806           .466667         1.40000E-03     2.5
( 700  700  300  100000 )
 44  85.2052  2173.6           7.25389E-03     .0110236        186.429
( 236700  52200  19300  12700 )
 45  133.189  3397.69          .0119658        .0189189        112.857
( 370000  31600  11700  7400 )
 46  99.532  2539.08           .0118644        .0191781        115.714
( 276500  32400  11800  7300 )
 47  148.704  3793.47          .0130841        .0233333        68.2143
( 413100  19100  10700  6000 )
 48  130.526  3329.73          .021875         .0411765        60
( 362600  16800  6400  3400 )
 49  0  0       .014            0               0
( 0  0  10000  0 )
 50  0  0       0               0               0
( 0  0  0  0 )
              ********AVERAGE********
        NO.       NO./AREA        MFPV            MFPH           L/A
   35.9546        917.21          .0219573        6.13443E-03    51.3
SD 46.0625        1175.06                                        55.6077
SE 6.51422        166.179                                        7.86411
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 27 JPL 6-840 SPEC F DISLOCATIONS ONLY 6-30-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	10.4	5.30612E-04	3333.33	3333.33	4.64286E-04
(52	65	21	21)		
2	19	9.69388E-04	1372.55	1521.74	1.14286E-03
(95	160	51	46)		
3	8.2	4.18367E-04	4666.67	4117.65	3.28571E-04
(41	46	15	17)		
4	115.8	5.90816E-03	220.126	221.519	6.77857E-03
(579	949	318	316)		
5	105.8	5.39796E-03	246.479	272.374	6.65714E-03
(529	932	284	257)		
6	86.6	4.41837E-03	305.677	313.901	5.04286E-03
(433	706	229	223)		
7	22.8	1.16327E-03	886.076	1093.75	1.46429E-03
(114	205	79	64)		
8	130.8	6.67347E-03	193.906	182.292	8.37857E-03
(654	1173	361	384)		
9	173.6	8.85715E-03	141.7	145.833	.0106214
(868	1487	494	480)		
10	626.4	.0319592	61.674	71.2106	.0275143
(3132	3852	1135	983)		
11	5.8	2.95918E-04	1458.33	1428.57	8.42857E-04
(29	118	48	49)		
12	1.8	9.18368E-05	6363.64	14000	0
(9	0	11	5)		
13	0	0	17500	17500	5.71429E-05
(0	8	4	4)		
14	107.2	5.46939E-03	250.896	218.069	6.90714E-03
(536	967	279	321)		
15	20.4	1.04082E-03	1458.33	1794.87	1.31429E-03
(102	184	48	39)		
16	117.4	5.98980E-03	209.581	207.101	7.77857E-03
(587	1089	334	338)		
17	151	7.70408E-03	255.474	280	6.42857E-03
(755	900	274	250)		
18	108.8	5.55102E-03	336.538	313.901	5.20714E-03
(544	729	208	223)		
19	61.8	3.15306E-03	432.099	393.258	3.47143E-03
(309	486	162	178)		
20	220.2	.0112347	209.581	197.74	7.52857E-03
(1101	1054	334	354)		
20	89.6	4.57143E-03	325.581	411.765	4.45714E-03
(448	624	215	170)		
21	0	0	0	0	
(0	0	0	0)		
22	68.4	3.48980E-03	285.714	760.87	4.81429E-03
(342	674	245	92)		
23	0	0	0	0	
(0	0	0	0)		
24	21.6	1.10204E-03	958.904	823.529	1.97143E-03
(108	276	73	85)		
25	3.2	1.63265E-04	11666.7	10000	1.57143E-04
(16	22	6	7)		

```
          ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   82.256      4.19674E-03   357.581       384.446       4.47200E-03
SD 123.45      6.29848E-03                               5.64856E-03
SE 24.6901     1.25970E-03                               1.12971E-03
 26  52.4  2.67347E-03       492.958       476.19        3.14286E-03
( 262  440  142  147 )
 27  170.4  8.69388E-03      141.129       143.149       .0102786
( 852  1439  496  489 )
 28  51.4  2.62245E-03       479.452       457.516       2.80000E-03
( 257  392  146  153 )
 29  233.8  .0119286         105.581       111.465       .0135071
( 1169  1891  663  628 )
 30  101  5.15306E-03        268.199       263.158       5.90000E-03
( 505  826  261  266 )
 31  43.4  2.21429E-03       588.235       603.448       2.57857E-03
( 217  361  119  116 )
 32  82.8  4.22449E-03       339.806       370.37        4.37143E-03
( 414  612  206  189 )
 33  23.4  1.19388E-03       1014.49       1014.49       1.85000E-03
( 117  259  69  69 )
 34  50.2  2.56123E-03       593.22        510.949       2.67857E-03
( 251  375  118  137 )
 35  21.8  1.11225E-03       1060.61       1166.67       1.61429E-03
( 109  226  66  60 )
 36  277.8  .0141735         105.422       101.597       .0147643
( 1389  2067  664  689 )
 37  33.2  1.69388E-03       583.333       614.035       2.16429E-03
( 166  303  120  114 )
 38  50.2  2.56123E-03       666.667       833.333       2.48571E-03
( 251  348  105  84 )
 39  31  1.58163E-03         886.076       933.333       1.62143E-03
( 155  227  79  75 )
 40  0  0  0                 0             0             ——
( 0  0  0  0 )
 41  0  0  0                 0             0
( 0  0  0  0 )
 42  267.2  .0136327         91.3838       97.3574       .0152
( 1336  2128  766  719 )
 43  19.2  9.79592E-04       3043.48       2800          8.21429E-04
( 96  115  23  25 )
 44  100.8  5.14286E-03      159.453       171.569       6.59286E-03
( 504  923  439  408 )
 45  106.6  5.43878E-03      233.333       244.755       6.68572E-03
( 533  936  300  286 )
 46  39.4  2.01020E-03       530.303       593.22        3.07857E-03
( 197  431  132  118 )
 47  20.6  1.05102E-03       573.77        1250          1.05714E-03
( 103  148  122  56 )
 48  10.2  5.20408E-04       3500          2800          5.07143E-04
( 51  71  20  25 )
 49  27.6  1.40816E-03       909.091       921.053       1.77143E-03
( 138  248  77  76 )
 50  2.4  1.22449E-04        6363.64       8750          2.35714E-04
( 12  33  11  8 )
          ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   77.464      3.95225E-03   348.675       368.848       4.35014E-03
SD 103.883     5.30013E-03                               5.09199E-03
SE 14.6912     7.49552E-04                               7.20116E-04
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 28 JPL 6-840 SPEC G TWINS ONLY 6-30-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2695

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	15.6586	399.455	.035	.0482759	39.2857
(42200	11000	4000	2900)		
2	18.6271	475.181	1.11821E-03	.0451613	48.2143
(50200	13500	125200	3100)		
3	60.705	1548.6	.0666667	.233333	67.8571
(163600	19000	2100	600)		
3	0	0	0	0	
(0	0	0	0)		
4	4.82375	123.055	.14	.2	9.64286
(13000	2700	1000	700)		
5	4.97217	126.841	.0636364	.0933333	19.2857
(13400	5400	2200	1500)		
6	.519481	13.2521	.35	1.4	4.28571
(1400	1200	400	100)		
7	1.2987	33.1301	2.32790E-04	.466667	8.57143
(3500	2400	601400	300)		
8	3.71058	94.6575	.0233333	6.96517E-03	0
(10000	0	6000	20100)		
9	2.96846	75.726	1.38889E-03	.155556	9.28572
(8000	2600	100800	900)		
10	151.688	3869.6	.14	6.00858E-03	13.2143
(408800	3700	1000	23300)		
10	2.00371	51.1151	.28	.28	6.07143
(5400	1700	500	500)		
11	8.16327	208.247	.1	.0875	16.7857
(22000	4700	1400	1600)		
12	7.1243	181.742	.0875	.0823529	17.8571
(19200	5000	1600	1700)		
13	4.67532	119.268	.14	.14	11.7857
(12600	3300	1000	1000)		
14	1.55844	39.7562	.155556	1.35397E-03	8.92857
(4200	2500	900	103400)		
15	2.07792	53.0082	.14	.28	9.28572
(5600	2600	1000	500)		
16	1.18738	30.2904	.155556	.7	178.571
(3200	50000	900	200)		
17	.445269	11.3589	.35	1.4	4.28571
(1200	1200	400	100)		
18	.371058	9.46575	.35	.7	3.57143
(1000	1000	400	200)		
19	0	0	0	0	
(0	0	0	0)		
20	1.55844	39.7562	.35	.35	4.64286
(4200	1300	400	400)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	0	0	0	0	
(0	0	0	0)		
24	0	0	0	0	
(0	0	0	0)		
25	0	0	0	0	
(0	0	0	0)		

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          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   3.26976      83.4122       4.12007E-03    .0251437       16.0143
SD 4.69721      119.827                                     35.2036
SE .939443      23.9654                                     7.04072
 26  42.2263  1077.2           .0153846       .0333333       91.0714
( 113800  25500  9100  6000 )
 27  6.93878  177.01           .0736842       .116667        17.8571
( 18700  5000  1900  1200 )
 28  4.15584  106.016          .28            .233333        6.42857
( 11200  1800  500  600 )
 29  45.0093  1148.2           .0208955       .0304348       65.3571
( 121300  18300  6700  4600 )
 30  35.5473  906.819          .0222222       .0222222       71.4286
( 95800  20000  6300  6300 )
 31  52.4675  1338.46          .01            .0155556       128.571
( 141400  36000  14000  9000 )
 32  1.22449  31.237           .466667        .466667        3.57143
( 3300  1000  300  300 )
 33  0  0       0              0              0
( 0  0  0  0 )
 34  0  0       0              0              0
( 0  0  0  0 )
 35  0  0       0              0              0
( 0  0  0  0 )
 36  0  0       0              0              0
( 0  0  0  0 )
 37  0  0       0              0              0
( 0  0  0  0 )
 38  0  0       0              0              0
( 0  0  0  0 )
 39  0  0       0              0              0
( 0  0  0  0 )
 40  0  0       0              0              0
( 0  0  0  0 )
 41  0  0       0              0              0
( 0  0  0  0 )
 42  2.04082  52.0616          .233333        .2             6.78572
( 5500  1900  600  700 )
 43  0  0       0              0              0
( 0  0  0  0 )
 44  0  0       0              0              0
( 0  0  0  0 )
 45  0  0       0              0              0
( 0  0  0  0 )
 46  .816327  20.8247          .466667        .7             3.57143
( 2200  1000  300  200 )
 47  31.8738  813.108          .0264151       .0358974       52.5
( 85900  14700  5300  3900 )
 48  2.00371  51.1151          .14            .35            8.21429
( 5400  2300  1000  400 )
 49  0  0       0              0              0
( 0  0  0  0 )
 50  3.45084  88.0315          .127273        .2             10.3571
( 9300  2900  1100  700 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   6.18998      157.908       7.80727E-03    .040439        17.3214
SD 12.5156      319.276                                     34.6275
SE 1.76998      45.1525                                     4.89707
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 28 JPL 6-840 SPEC G DISLOCATIONS ONLY 6-30-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.2

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	60.1923	3.07104E-03	144.033	142.566	3.58571E-03
(313	502	486	491)		
2	6.53846	3.33595E-04	5833.33	3333.33	3.00000E-04
(34	42	12	21)		
3	299.231	.0152669	96.9529	105.422	.158407
(1556	22177	722	664)		
4	42.5	2.16837E-03	804.598	886.076	1.92857E-03
(221	270	87	79)		
5	0	0	0	0	
(0	0	0	0)		
6	9.61539	4.90581E-04	3500	3181.82	4.92857E-04
(50	69	20	22)		
7	18.4615	9.41915E-04	1590.91	1794.87	9.21429E-04
(96	129	44	39)		
8	16.1538	8.24176E-04	2187.5	1794.87	7.57143E-04
(84	106	32	39)		
9	75.3846	3.84615E-03	330.189	341.463	4.60714E-03
(392	645	212	205)		
10	56.9231	2.90424E-03	328.638	476.19	3.98571E-03
(296	558	213	147)		
11	218.846	.0111656	114.379	128.44	.0138429
(1138	1938	612	545)		
12	116.538	5.94584E-03	292.887	255.474	4.93571E-03
(606	691	239	274)		
13	31.3462	1.59929E-03	642.202	714.286	1.96429E-03
(163	275	109	98)		
14	24.6154	1.25589E-03	1129.03	1166.67	1.27857E-03
(128	179	62	60)		
15	93.4615	4.76845E-03	237.288	228.013	6.27857E-03
(486	879	295	307)		
16	50.7692	2.59027E-03	463.576	496.454	3.13571E-03
(264	439	151	141)		
17	130	6.63265E-03	219.436	218.069	7.60000E-03
(676	1064	319	321)		
18	43.6538	2.22724E-03	500	534.351	2.72857E-03
(227	382	140	131)		
19	19.2308	9.81162E-04	1320.75	1228.07	1.18571E-03
(100	166	53	57)		
20	12.6923	6.47567E-04	2800	2000	7.92857E-04
(66	111	25	35)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	7.69231	3.92465E-04	5000	4375	3.14286E-04
(40	44	14	16)		
24	49.4231	2.52159E-03	886.076	1044.78	9.13571E-03
(257	1279	79	67)		
24	4.03846	2.06044E-04	7777.78	5833.33	2.42857E-04
(21	34	9	12)		
25	15.7692	8.04553E-04	2000	1666.67	6.50000E-04
(82	91	35	42)		

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        ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   54.1462     2.76256E-03   449.756       467.165       8.79743E-03
SD 70.8153     3.61302E-03                                .0306933
SE 14.1631     7.22605E-04                                6.13866E-03
 26  245.962   .0125491      161.29        141.129       .0105286
( 1279  1474  434  496 ) FIELD OGLETED
 26  153.462   7.82967E-03   202.899       212.766       7.00714E-03
( 798  981  345  329 )
 27  18.2692   9.32104E-04   1166.67       1372.55       1.05000E-03
( 95  147  60  51 )
 28  0  0      0             0             0
( 0  0  0  0 )
 29  0  0      0             0             0
( 0  0  0  0 )
 30  0  0      0             0             0
( 0  0  0  0 )
 31  48.6538   2.48234E-03   573.77        463.576       3.25714E-03
( 253  456  122  151 )
 32  39.0385   1.99176E-03   603.448       833.333       2.70000E-03
( 203  378  116  84 )
 33  80  4.08163E-03        234.114       294.118       6.42143E-03
( 416  899  299  238 )
 34  54.0385   2.75707E-03   357.143       400           4.47143E-03
( 281  626  196  175 )
 35  23.4615   1.19702E-03   958.904       1014.49       1.45000E-03
( 122  203  73  69 )
 36  22.1154   1.12834E-03   1014.49       864.197       2.07857E-03
( 115  291  69  81 )
 37  33.0769   1.68760E-03   630.631       777.778       2.19286E-03
( 172  307  111  90 )
 38  52.1154   2.65895E-03   673.077       534.351       2.80000E-03
( 271  392  104  131 )
 39  43.8462   2.23705E-03   625           569.106       2.27857E-03
( 228  319  112  123 )
 40  16.7308   8.53611E-04   1489.36       1627.91       9.78571E-04
( 87  137  47  43 )
 41  0  0      0             0             0
( 0  0  0  0 )
 42  33.6538   1.71703E-03   813.953       853.658       2.30000E-03
( 175  322  86  82 )
 43  15.5769   7.94741E-04   1891.89       1750          9.85714E-04
( 81  138  37  40 )
 44  13.0769   6.67190E-04   2058.82       2058.82       7.21429E-04
( 68  101  34  34 )
 45  27.5  1.40306E-03      686.274       945.946       1.80714E-03
( 143  253  102  74 )
 46  44.0385   2.24686E-03   736.842       642.202       2.41429E-03
( 229  338  95  109 )
 47  84.0385   4.28768E-03   281.124       316.742       4.93571E-03
( 437  691  249  221 )
 48  113.654   5.79867E-03   238.095       266.16        6.52857E-03
( 591  914  294  263 )
 49  238.077   .0121468      121.317       134.615       .0107214
( 1238  1501  577  520 )
 50  49.4231   2.52159E-03   1076.92       777.778       1.59286E-03
( 257  223  65  90 )
        ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
   51.15       2.60969E-03   494.071       518.98        5.77257E-03
SD 62.5046     3.18901E-03                                .0219889
SE 8.83949     4.50994E-04                                3.10970E-03
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 29 JPL 6-837 SPEC A TWINS ONLY 7-3-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 RTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2400

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	.958333	24.4473	.28	1.4	4.28571
(2300	1200	500	100)		
2	.833333	21.2585	.28	1.4	3.92857
(2000	1100	500	100)		
3	.916667	23.3844	.28	6.99650E-04	289.643
(2200	81100	500	200100)		
4	80.7917	2061.01	2.56410E-03	.0285714	102.143
(193900	28600	54600	4900)		
5	32.7083	834.396	.0264151	.0451613	50.3571
(78500	14100	5300	3100)		
6	0	0	0	0	
(0	0	0	0)		
7	.0833333	2.12585	0	0	0
(200	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	15.4167	393.282	.05	.056	29.6429
(37000	8300	2800	2500)		
10	29.6667	756.803	.0358974	.0311111	47.8571
(71200	13400	3900	4500)		
11	52.8333	1347.79	.0205882	.0162791	88.2143
(126800	24700	6800	8600)		
12	49	1250	.0245614	.0172839	79.2857
(117600	22200	5700	8100)		
13	32.375	825.893	.0333333	.0233333	57.5
(77700	16100	4200	6000)		
14	32.0417	817.39	.0237288	.0208955	72.1429
(76900	20200	5900	6700)		
15	30.4167	775.935	.0304348	.0222222	61.4286
(73000	17200	4600	6300)		
16	35.1667	897.109	.028	.0212121	64.2857
(84400	18000	5000	6600)		
17	.166667	4.2517	0	0	.714286
(400	200	0	0)		
18	.125	3.18878	.7	0	1.42857
(300	400	200	0)		
19	1.83333	46.7687	.233333	.28	6.42857
(4400	1800	600	500)		
20	.375	9.56633	1.4	0	2.14286
(900	600	100	0)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	.0833333	2.12585	0	0	0
(200	0	0	0)		
24	3.16667	80.7823	.107692	.2	11.7857
(7600	3300	1300	700)		
25	.0416667	1.06293	0	0	0
(100	0	0	0)		

```
********AVERAGE********
      NO.      NO./AREA        MFPV            MFPH            L/A
   15.96       407.143         .0341463        .013524         38.9286
SD 21.7182     554.035                                         60.943
SE 4.34363     110.807                                         12.1886
 26  0  0      0               0               0
( 0  0  0  0 )
 27  0  0      0               0               0
( 0  0  0  0 )
 28  2.25  57.398              .14             .35             9.64286
( 5400  2700  1000  400 )
 29  8.375  213.648           .0518518        .1              22.8571
( 20100  6400  2700  1400 )
 30  1.125  28.699            .28             .7              5.35714
( 2700  1500  500  200 )
 31  6.04167  154.124         .0583333        .14             22.5
( 14500  6300  2400  1000 )
 32  19.625  500.638          .0222222        .0411765        56.7857
( 47100  15900  6300  3400 )
 33  54.375  1387.12          .0411765        .0933333        29.2857
( 130500  8200  3400  1500 ) FIELD DELETED
 33  .625  15.9439            .7              0               2.14286
( 1500  600  200  0 )
 34  3.79167  96.7262         .107692         .127273         13.9286
( 9100  3900  1300  1100 )
 35  4.66667  119.048         .107692         .0875           16.4286
( 11200  4600  1300  1600 )
 36  38.8333  990.646         .021875         .0172839        80
( 93200  22400  6400  8100 )
 37  47.7083  1217.05         .0152174        .0135922        107.5
( 114500  30100  9200  10300 )
 38  39.2083  1000.21         .0170732        .0177215        91.4286
( 94100  25600  8200  7900 )
 39  46.5833  1188.35         .0153846        .0138614        109.286
( 111800  30600  9100  10100 )
 40  38.6667  986.395         .0159091        1.29032E-03     97.8571
( 92800  27400  8800  108500 )
 41  49.3333  1258.5          .0147368        .014            109.286
( 118400  30600  9500  10000 )
 42  43.375  1106.51          .02             .0191781        80.7143
( 104100  22600  7000  7300 )
 43  40.7083  1038.48         .0202899        .0166667        86.4286
( 97700  24200  6900  8400 )
 44  30.625  781.25           .0212121        .0194444        78.2143
( 73500  21900  6600  7200 )
 45  122.25  3118.62          .0241379        .0212121        70.3571
( 293400  19700  5800  6600 )
 46  135.25  3450.26          .0259259        .0222222        67.1429
( 324600  18800  5400  6300 )
 47  91.2917  2328.87         .0297872        .0291667        55
( 219100  15400  4700  4800 )
 48  106.542  2717.9          .0205882        .021875         76.4286
( 255700  21400  6800  6400 )
 49  42.25  1077.81           .0222222        .0155556        83.2143
( 101400  23300  6300  9000 )
 50  39.5833  1009.78         .0241379        .0170732        77.5
( 95000  21700  5800  8200 )
********AVERAGE********
      NO.      NO./AREA        MFPV            MFPH            L/A
   27.1542     692.708         .0311526        .0143737        47.8643
SD 32.863      838.341                                         51.4134
SE 4.64753     118.559                                         7.27096
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 29 JPL 6-837 SPEC A DISLOCATIONS ONLY 7-3-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.5

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	9.63636	4.91651E-04	3333.33	3333.33	5.64286E-04
(53	79	21	21)			
2	0	0	0	0	
(0	0	0	0)			
3	52.1818	2.66234E-03	578.512	560	2.71429E-03
(287	380	121	125)			
4	255.091	.0130148	146.138	145.53	.0109857
(1403	1538	479	481)	FIELD DELETED		
4	73.2727	3.73841E-03	313.901	321.101	4.73571E-03
(403	663	223	218)			
5	488	.024898	50.2513	52.1998	.0314571
(2684	4404	1393	1341)			
6	79.0909	4.03525E-03	486.111	395.48	3.60714E-03
(435	505	144	177)			
7	123.818	6.31726E-03	200.573	230.263	7.66429E-03
(681	1073	349	304)			
8	54.5455	2.78293E-03	534.351	569.106	3.22143E-03
(300	451	131	123)			
9	3.45455	1.76252E-04	7000	8750	2.35714E-04
(19	33	10	8)			
10	56.7273	2.89425E-03	419.162	538.461	2.92143E-03
(312	409	167	130)			
11	61.6364	3.14471E-03	366.492	416.667	4.35000E-03
(339	609	191	168)			
12	32.5455	1.66048E-03	721.649	654.206	1.94286E-03
(179	272	97	107)			
13	0	0	0	0	
(0	0	0	0)			
14	25.2727	1.28943E-03	1206.9	1400	1.24286E-03
(139	174	58	50)			
15	0	0	0	0	
(0	0	0	0)			
16	0	0	0	0	
(0	0	0	0)			
17	0	0	0	0	
(0	0	0	0)			
18	0	0	0	0	
(0	0	0	0)			
19	0	0	0	0	
(0	0	0	0)			
20	0	0	0	0	
(0	0	0	0)			
21	0	0	0	0	
(0	0	0	0)			
22	0	0	0	0	
(0	0	0	0)			
23	0	0	0	0	
(0	0	0	0)			
24	129.818	6.62338E-03	397.727	324.074	3.03571E-03
(714	425	176	216)			

LAST FIELD DELETED

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 24  445.455   .0227273        74.7863        83.1354        .0190929
( 2450  2673  936  842 )
 25  1139.64   .0581447        25.0537        25.8017        .06175
( 6268  8645  2794  2713 )
            ********AVERAGE********
       NO.       NO./AREA        MFPV          MFPH          L/A
   105.811     5.39852E-03    263.753        276.592        5.82000E-03
SD 244.697      .0124846                                     .0133648
SE 48.9395      2.49691E-03                                  2.67295E-03
 26  842.182   .0429685        30.5277        30.9461        .0536857
( 4632  7516  2293  2262 )
 27  441.273   .0225139        47.4255        50.6879        .0295357
( 2427  4135  1476  1381 )
 28  657.636   .0335529        33.7025        39.7276        .0447929
( 3617  6271  2077  1762 )
 29  499.636   .0254917        42.8135        47.5543        .0322929
( 2748  4521  1635  1472 )
 30  1395.27   .0711874        20.9706        23.0947        .0716929
( 7674  10037  3338  3031 )
 31  2666.18   .13603          12.3479        12.951         .123757
( 14664  17326  5669  5405 )
 32  2609.82   .133154         11.127         12.2506        .129521
( 14354  18133  6291  5714 )
 33  195.636   9.98145E-03     116.473        120.69         .0132071
( 1076  1849  601  580 )
 34  353.455   .0180334        65.4818        65.1163        .0246857
( 1944  3456  1069  1075 )
 35  59.6364   3.04267E-03     555.555        555.555        3.10000E-03
( 328  434  126  126 )
 36  169.818   8.66419E-03     171.99         157.658        9.39286E-03
( 934  1315  407  444 )
 37  141.636   7.22635E-03     182.292        174.129        9.62143E-03
( 779  1347  384  402 )
 38  29.8182   1.52134E-03     897.436        843.373        1.79286E-03
( 164  251  78  83 )
 39  1266.36   .0646104        21.7391        22.9583        .0716
( 6965  10024  3220  3049 )
 40  4482  .228674            8.16422        9.01481        .467779
( 24651  65489  8574  7765 )
 41  3640.18   .185724         8.46126        9.23726        .170457
( 20021  23864  8273  7578 )
 42  2199.64   .112226         12.5045        13.4771        .117257
( 12098  16416  5598  5194 )
 43  1.63636   8.34880E-05     11666.7        11666.7        1.71429E-04
( 9  24  6  6 )
 44  33.2727   1.69759E-03     714.286        679.612        1.78571E-03
( 183  250  98  103 )
 45  0  0      0              0              0
( 0  0  0  0 )
 46  0  0      0              0              0
( 0  0  0  0 )
 47  109.636   5.59369E-03     249.11         257.353        6.22143E-03
( 603  871  281  272 )
 47  0  0      0              0              0
( 0  0  0  0 )
 48  0  0      0              0              0
( 0  0  0  0 )
 49  1.09091   5.56586E-05     70000          10000          6.42857E-05
( 6  9  1  7 )
 50  0  0      17500          0              1.07143E-04
( 0  15  4  0 )
            ********AVERAGE********
       NO.       NO./AREA        MFPV          MFPH          L/A
   486.629      .024828         60.4982        65.0969        .030436
SD 973.529      .0496699                                     .0735879
SE 137.678      7.02438E-03                                  .0104069
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ORIGINAL PAGE IS OF POOR QUALITY

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 30 JPL 6-837 SPEC B TWINS ONLY 7-3-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 3400

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	6.20588	158.313	.233333	.2	7.14286
(21100	2000	600	700)		
2	.735294	18.7575	.466667	.466667	3.21429
(2500	900	300	300)		
3	15.3824	392.407	.0264151	.0358974	51.7857
(52300	14500	5300	3900)		
4	19.0294	485.444	.025	.0318182	270.357
(64700	75700	5600	4400)		
5	11.9706	305.372	.0245614	.0304348	273.214
(40700	76500	5700	4600)		
6	68.5882	1749.7	.0202899	.027451	68.5714
(233200	19200	6900	5100)		
7	42.3824	1081.18	.0269231	.04	48.5714
(144100	13600	5200	3500)		
8	19.0588	486.195	.0172839	.025	78.2143
(64800	21900	8100	5600)		
9	16.2353	414.166	.0368421	.0451613	39.2857
(55200	11000	3800	3100)		
10	.294118	7.503	.35	0	2.85714
(1000	800	400	0)		
11	20.2353	516.207	2.30074E-04	3.84615E-03	44.6429
(68800	12500	608500	36400)		
12	42.3235	1079.68	.0823529	.14	38.2143
(143900	10700	1700	1000)		
13	56.7059	1446.58	8.53658E-03	.0113821	99.6429
(192800	27900	16400	12300)		
14	53.4118	1362.55	8.97436E-03	.0135922	150.357
(181600	42100	15600	10300)		
15	56.9412	1452.58	6.82927E-03	.0107692	161.786
(193600	45300	20500	13000)		
16	61	1556.12	.0222222	.028	63.5714
(207400	17800	6300	5000)		
17	43.6471	1113.45	1.30112E-03	1.21739E-03	74.6429
(148400	20900	107600	115000)		
18	32.1765	820.828	.0115702	.0145833	121.429
(109400	34000	12100	9600)		
19	53.7059	1370.05	9.09091E-03	.0122807	148.929
(182600	41700	15400	11400)		
20	54.1176	1380.55	9.03226E-03	1.81230E-04	290
(184000	81200	15500	772500)		
21	100.794	2571.28	9.33333E-03	.0133333	107.5
(342700	30100	15000	10500)		
22	75.9412	1937.28	7.36842E-03	.0114754	184.286
(258200	51600	19000	12200)		
23	92.3824	2356.69	6.14035E-03	.0101449	180.357
(314100	50500	22800	13800)		
24	241.412	6158.46	8.97436E-03	.0122807	153.929
(820800	43100	15600	11400)		
25	72.2059	1841.99	1.40548E-04	.0115702	435.357
(245500	121900	996100	12100)		

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        ********AVERAGE********
      NO.      NO./AREA        MFPV            MFPH          L/A
   50.2753     1282.53      1.81347E-03   3.24766E-03    123.914
SD 47.6062     1214.44                                   103.038
SE 9.52123     242.889                                   20.6076
 26  86.2941  2201.38         6.89655E-03   .0109375      188.929
( 293400  52900  20300  12800 )
 27  46.7059  1191.48         7.77778E-03   .0153846      159.643
( 158800  44700  18000  9100 )
 28  65.5  1670.92            1.12631E-03   .0142857      155.714
( 222700  43600  124300  9800 )
 29  73.5882  1877.25         9.39597E-03   .0148936      142.5
( 250200  39900  14900  9400 )
 30  74.5294  1901.26         7.86517E-03   1.63762E-04   170.714
( 253400  47800  17800  854900 )
 31  86.2059  2199.13         2.02781E-04   .0118644      183.929
( 293100  51500  690400  11800 )
 32  130.824  3337.34         8.23529E-03   .0132075      164.643
( 444800  46100  17000  10600 )
 33  61.7941  1576.38         7.10660E-03   .0117647      150.357
( 210100  42100  19700  11900 )
 34  33.5  854.592            9.85915E-03   .016092       131.071
( 113900  36700  14200  8700 )
 35  0  0       0             0             0
( 0  0  0  0 )
 36  2.20588  56.2725          .0875         .233333       12.5
( 7500  3500  1600  600 )
 37  5.17647  132.053          .0608696      .0823529      22.5
( 17600  6300  2300  1700 )
 38  4.55882  116.297          .0482759      .0777778      27.5
( 15500  7700  2900  1800 )
 39  3.14706  80.2821          1.48667E-04   .116667       15.7143
( 10700  4400  941700  1200 )
 40  23.0882  588.986          .0333333      .0482759      41.7857
( 78500  11700  4200  2900 )
 41  12.7059  324.13           .0285714      .035          49.2857
( 43200  13800  4900  4000 )
 42  8.23529  210.084          .0341463      .0411765      41.0714
( 28000  11500  4100  3400 )
 43  11.4412  291.867          .0285714      .04375        43.9286
( 38900  12300  4900  3200 )
 44  41.6471  1062.43          .0150538      .0222222      361.429
( 141600  101200  9300  6300 )
 45  13.8529  353.391          .0264151      .0291667      55
( 47100  15400  5300  4800 )
 46  20.5882  525.21           .0170732      .0233333      76.7857
( 70000  21500  8200  6000 )
 47  222.5  5676.02            .0222222      .0259259      65
( 756500  18200  6300  5400 )
 48  25.0882  640.006          .0172839      .0215385      81.7857
( 85300  22900  8100  6500 )
        ********AVERAGE********
      NO.      NO./AREA        MFPV            MFPH          L/A
   48.1262     1227.71      1.73625E-03   3.25503E-03    113.326
SD 49.2636     1256.72                                   94.4679
SE 7.11058     181.392                                   13.6353
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 30 JPL 6-837 SPEC B DISLOCATIONS ONLY 7-3-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5.2

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	1571.54	.0801806	17.0027	18.1394	.0849143
(8172	11888	4117	3859)		
2	2070.96	.105661	13.8696	14.5018	.109821
(10769	15375	5047	4827)		
3	427.885	.0218309	51.4706	59.8291	.0269357
(2225	3771	1360	1170)		
4	185	9.43878E-03	216.049	220.82	7.33572E-03
(962	1027	324	317)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	51.3462	2.61970E-03	372.34	466.667	4.25714E-03
(267	596	188	150)		
11	931.154	.0475079	26.2467	29.511	.07095
(4842	9933	2667	2372)		
12	1590.77	.0811617	16.1887	17.8299	.08765
(8272	12271	4324	3926)		
13	4.23077	2.15856E-04	7000	5384.61	1.64286E-04
(22	23	10	13)		
14	0	0	0	0	
(0	0	0	0)		
15	0	0	0	0	
(0	0	0	0)		
16	6.53846	3.33595E-04	3888.89	2692.31	4.42857E-04
(34	62	18	26)		
17	586.539	.0299254	49.6454	58.7248	.0271143
(3050	3796	1410	1192)		
18	1766.54	.0901295	18.7216	23.6167	.0724143
(9186	10138	3739	2964)		
19	0	0	0	0	
(0	0	0	0)		
20	0	0	0	0	
(0	0	0	0)		
21	8.46154	4.31711E-04	2058.82	2333.33	4.50000E-04
(44	63	34	30)		
22	23.0769	1.17739E-03	1372.55	10000	6.50000E-04
(120	91	51	7)		
23	0	0	0	0	
(0	0	0	0)		
24	0	0	0	0	
(0	0	0	0)		
25	261.923	.0133634	165.485	166.667	8.30714E-03
(1362	1163	423	420)		

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                ********AVERAGE********
        NO.       NO./AREA          MFPV          MFPH          L/A
   379.439        .0193591        73.8023       82.2639       .0200563
SD 642.208        .0327657                                    .0339279
SE 128.442        6.55314E-03                                 6.78558E-03
 26   0   0         0                0             0
( 0   0   0   0 )
 27   2.11538   1.07928E-04          0             14000       2.07143E-04
( 11   29   0   5 )
 28   10.9615   5.59262E-04          666.667       1228.07     7.85714E-04
( 57   110   105   57 )
 29   0   0         0                0             2.00000E-04
( 0   28   0   0 )
 30   2.30769   1.17739E-04          7000          522.388     0
( 12   0   10   134 )
 31   .961539   4.90581E-05          8750          6363.64     0
( 5   0   8   11 )
 32   1.92308   9.81162E-05          14000         35000       1.28571E-04
( 10   18   5   2 )
 33   5.57692   2.84537E-04          3333.33       3684.21     7.78572E-04
( 29   109   21   19 )
 34   0   0         0                0             0
( 0   0   0   0 )
 35   0   0         0                0             0
( 0   0   0   0 )
 36   3645.58   .185999              8.37421       9.18515     .171814
( 18957   24054   8359   7621 )
 37   549.808   .0280514             44.757        44.9294     .0333786
( 2859   4673   1564   1558 )
 38   590.962   .0301511             42.3729       44.3881     .0317286
( 3073   4442   1652   1577 )
 39   26.5385   1.35400E-03          560           958.904     2.21429E-03
( 138   310   125   73 )
 40   922.692   .0470761             29.4241       30.6748     .0496429
( 4798   6950   2379   2282 )
 41   753.077   .0384223             38.0228       43.3974     .0357357
( 3916   5003   1841   1613 )
 42   13.8462   7.06437E-04          1428.57       2500        1.12857E-03
( 72   158   49   28 )
 43   13.8462   7.06437E-04          1891.89       2000        1.04286E-03
( 72   146   37   35 )
 44   0   0         0                0             0
( 0   0   0   0 )
 45   1.34615   6.86813E-05          14000         10000       6.42857E-05
( 7   9   5   7 )
 46   0   0         0                0             0
( 0   0   0   0 )
 47   0   0         0                0             0
( 0   0   0   0 )
 48   0   0         0                0             0
( 0   0   0   0 )
 49   0   0         0                0             0
( 0   0   0   0 )
 50   0   0         0                0             0
( 0   0   0   0 )
                ********AVERAGE********
        NO.       NO./AREA          MFPV          MFPH          L/A
   320.55         .0163546        87.7809       96.432        .0166051
SD 694.752        .0354465                                    .0347674
SE 98.2527        5.01290E-03                                 4.91685E-03
```

DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 31 JPL 6-837 SPEC C TWINS ONLY 7-3-79

OPERATOR IS TI M MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2688

FLD	NO.	NO./AREA	MFPV	MFPH	L/A
(A,P,VP,HP)					
1	23.1771	591.252	2.99786E-03	.0291667	70.7143
(62300	19800	46700	4800)		
2	11.9048	303.693	.0358974	.04	41.7857
(32000	11700	3900	3500)		
3	23.7351	605.488	.0191781	.0212121	78.9286
(63800	22100	7300	6600)		
4	6.3244	161.337	.0538461	.107692	22.8571
(17000	6400	2600	1300)		
5	28.5342	727.914	.0181818	.0225806	77.5
(76700	21700	7700	6200)		
6	118.676	3027.44	.021875	.0237288	65.3571
(319000	18300	6400	5900)	FIELD DELETED	
6	51.7485	1320.12	.0137255	.0142857	111.071
(139100	31100	10200	9800)		
7	46.7634	1192.94	.0133333	.0166667	106.429
(125700	29800	10500	8400)		
8	34.4866	879.76	.0177215	.0191781	86.4286
(92700	24200	7900	7300)		
9	12.4256	316.98	.04	.0451613	35.7143
(33400	10000	3500	3100)		
10	3.1622	80.6684	.175	.155556	9.28572
(8500	2600	800	900)		
11	.520833	13.2866	.35	0	2.5
(1400	700	400	0)		
12	.483631	12.3375	.35	1.4	3.21429
(1300	900	400	100)		
13	0	0	0	142.857	
(0	40000	0	0)		
14	0	0	.14	0	
(0	0	0	1000)		
15	2.15774	55.0444	.2	.28	7.5
(5800	2100	700	500)		
16	.818452	20.8789	.2	1.4	4.28571
(2200	1200	700	100)		
17	1.30208	33.2164	.175	.466667	7.14286
(3500	2000	800	300)		
18	2.86458	73.0761	.155556	.35	8.57143
(7700	2400	900	400)		
19	2.86458	73.0761	.107692	.233333	11.7857
(7700	3300	1300	600)		
20	3.42262	87.3117	.0875	.175	12.1429
(9200	3400	1600	800)		
21	53.1622	1356.18	1.57392E-04	4.29053E-04	131.429
(142900	36800	889500	326300)		
22	126.488	3226.74	9.72222E-03	.0148936	145.357
(340000	40700	14400	9400)		
23	126.563	3228.64	.0341463	.04375	45
(340200	12600	4100	3200)		
24	3.27381	83.5156	.175	.28	7.85714
(8800	2200	800	500)		
25	.744048	18.9808	.7	1.4	2.5
(2000	700	200	100)		

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        ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
  22.6771      578.497       3.44183E-03   8.85627E-03   46.9143
SD 34.842      888.826                                   48.3248
SE 6.9684      177.765                                   9.66496
 26  100.595  2566.21         .0388889      .04           42.5
( 270400  11900  3600  3500 )
 27  44.3452  1131.26         .0202899      .0297872      33.2143
( 119200  9300  6900  4700 )
 28  11.3467  289.457         .0482759      .0538461      33.9286
( 30500  9500  2900  2600 )
 29  96.9122  2472.25         .0237288      .0311111      61.4286
( 260500  17200  5900  4500 )
 30  185.975  4744.25         .175          .233333       10.3571
( 499900  2900  800  600 )
 31  130.357  3325.44         .0482759      .0736842      29.2857
( 350400  8200  2900  1900 )
 32  0  0       0             0             0
( 0  0  0  0 )
 33  2.45536  62.6367         .28           .2            6.07143
( 6600  1700  500  700 )
 34  26.5253  676.666         1.30233E-03   .0233333      79.2857
( 71300  22200  107500  6000 )
 35  29.5015  752.589         .0197183      .0222222      74.2857
( 79300  20800  7100  6300 )
 36  30.5804  780.111         .0172839      .021875       82.8571
( 82200  23200  8100  6400 )
 37  26.2277  669.074         .0191781      .0233333      74.6429
( 70500  20900  7300  6000 )
 38  36.9792  943.346         .0186667      .0208955      77.5
( 99400  21700  7500  6700 )
        ********AVERAGE********
      NO.      NO./AREA        MFPV          MFPH          L/A
  33.9139      865.15        4.51651E-03   .0119524      46.7951
SD 45.0895     1150.24                                   42.6977
SE 7.31448     186.594                                   6.92649
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 31 JPL 6-837 DISLOCATIONS ONLY 7-3-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 6.5

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	25.2308	1.28728E-03	1044.78	1060.61	1.40000E-03
(164	196	67	66)		
2	13.5385	6.90738E-04	2121.21	2692.31	7.50000E-04
(88	105	33	26)		
3	27.0769	1.38148E-03	679.612	700	2.14286E-03
(176	300	103	100)		
4	2914.62	.148705	8.94683	9.93471	.162286
(18945	22720	7824	7046)		
5	0	0	0	0	
(0	0	0	0)		
6	0	0	0	0	
(0	0	0	0)		
7	0	0	0	0	
(0	0	0	0)		
8	0	0	0	0	
(0	0	0	0)		
9	0	0	0	0	
(0	0	0	0)		
10	0	0	0	0	
(0	0	0	0)		
11	909.846	.0464207	23.9234	25.2799	.0589571
(5914	8254	2926	2769)		
12	530	.0270408	36.3259	40.2068	.0410714
(3445	5750	1927	1741)		
13	558	.0284694	39.5034	45.9318	.0376714
(3627	5274	1772	1524)		
14	596.769	.0304474	36.9783	39.6825	.0408143
(3879	5714	1893	1764)		
15	293.385	.0149686	79.096	83.5322	.0185214
(1907	2593	885	838)		
16	615.385	.0313972	35.2645	36.3259	.0423857
(4000	5934	1985	1927)		
17	921.077	.0469937	23.577	24.4584	.0648429
(5987	9078	2969	2862)		
18	911.077	.0464835	22.846	25.2071	.0657714
(5922	9208	3064	2777)		
19	1654	.0843878	13.5292	15.3072	.111364
(10751	15591	5174	4573)		
20	1849.54	.0943642	12.8653	13.7877	.123271
(12022	17258	5441	5077)		
21	1636.31	.0834851	13.245	14.9349	.104043
(10636	14566	5285	4687)		
22	0	0	0	0	
(0	0	0	0)		
23	0	0	0	0	
(0	0	0	0)		
24	0	0	0	0	
(0	0	0	0)		
25	0	0	0	0	
(0	0	0	0)		

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                ********AVERAGE********
        NO.       NO./AREA        MFPV          MFPH          L/A
   538.234        .0274609       42.3237       46.3245       .0350117
SD 748.534        .0381905                                   .0460603
SE 149.707        7.63811E-03                                9.21207E-03
 26   0   0        0              0             0
( 0   0   0   0 )
 27   754.308     .0384851       33.7349       40.0687       .0409429
( 4903  5732   2075   1747 )
 28   588   .03   43.6137        45.8716       .0323429
( 3822  4528   1605   1526 )
 29   672.154     .0342936       38.1264       36.4963       .0374214
( 4369  5239   1836   1918 )
 30   224.308     .0114443       86.4197       109.204       .0162286
( 1458  2272   810   641 )
 31   0   0        0              0             0
( 0   0   0   0 )
 32   0   0        0              0             0
( 0   0   0   0 )
 33   0   0        0              0             0
( 0   0   0   0 )
 34   0   0        0              0             0
( 0   0   0   0 )
 35   76.4615     3.90110E-03    130.354       404.624       7.36429E-03
( 497   1031   537   173 )
 36   0   0        0              0             0
( 0   0   0   0 )
 37   0   0        0              0             0
( 0   0   0   0 )
 38   0   0        0              0             0
( 0   0   0   0 )
 39   0   0        0              0             0
( 0   0   0   0 )
                ********AVERAGE********
        NO.       NO./AREA        MFPV          MFPH          L/A
   404.387        .020632        56.6261       62.3544       .025887
SD 646.391        .0329792                                   .0398682
SE 103.505        5.28089E-03                                6.38402E-03
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 32 JPL 6-837 SPEC D TWINS ONLY 7-3-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MM CALIBRATION FACTOR (UNITS/PP)= 2.80000E-04
FRAME AREA= 500000 QTM OUTPUT WAS DIVIDED BY 100 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 2250

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	19.2889	492.064	1.35135E-03	.035	50
(43400	14000	103600	4000)		
2	1.51111	38.5488	.2	1.4	5.35714
(3400	1500	700	100)		
3	87.2444	2225.62	9.21053E-03	.0466667	12.1429
(196300	3400	15200	3000)	FIELD DELETED	
3	2.48889	63.4921	.1	.35	8.92857
(5600	2500	1400	400)		
4	17.6889	451.247	.0318182	.0538461	40.3571
(39800	11300	4400	2600)		
5	7.46667	190.476	.05	.107692	24.6429
(16800	6900	2800	1300)		
6	190.311	4854.88	.0341463	.0538461	39.6429
(428200	11100	4100	2600)	FIELD DELETED	
6	19.7333	503.401	.021875	.0368421	271.786
(44400	76100	6400	3800)		
7	8.31111	212.018	.0538461	.0736842	27.8571
(18700	7800	2600	1900)		
8	5.42222	138.322	.0583333	.107692	21.7857
(12200	6100	2400	1300)		
9	11.0667	282.313	.035	.05	37.8571
(24900	10600	4000	2800)		
10	12.5333	319.728	.0318182	.0482759	43.2143
(28200	12100	4400	2900)		
11	38.8	989.796	.0177215	.025	78.5714
(87300	22000	7900	5600)		
12	13.2444	337.869	.0388889	.056	36.4286
(29800	10200	3600	2500)		
13	17.3778	443.311	.0358974	.0482759	39.2857
(39100	11000	3900	2900)		
14	32.3556	825.397	.0215385	.0285714	64.6429
(72800	18100	6500	4900)		
15	32.4	826.531	.0132075	.0194444	99.6429
(72900	27900	10600	7200)		
16	83.6889	2134.92	6.89655E-03	.0100719	195.714
(188300	54800	20300	13900)		
17	63.6889	1624.72	.0241379	.0325581	58.2143
(143300	16300	5800	4300)		
18	.622222	15.873	.7	0	2.85714
(1400	800	200	0)		
19	34.7111	885.488	.0109375	.0212121	119.286
(78100	33400	12800	6600)		
20	154.711	3946.71	8.69565E-03	.0170732	111.071
(348100	31100	16100	8200)		
21	151.911	3875.28	8.58896E-03	.0170732	148.214
(341800	41500	16300	8200)		
22	0	0	0	0	
(0	0	0	0)		
23	11.1556	284.581	.0466667	.0608696	31.4286
(25100	8800	3000	2300)		
24	42.5778	1086.17	.025	.0333333	56.7857
(95800	15900	5600	4200)		
25	43.8222	1117.91	.021875	.0297872	65.3571
(98600	18300	6400	4700)		

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          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   33.0631      843.447        .0139054        .0362319      65.5714
SD 40.6952      1038.14                                      62.4956
SE 8.13904      207.629                                      12.4991
 26  0  0        0               0               0
( 0  0  0  0 )
 27  0  0        0               0               0
( 0  0  0  0 )
 28  .844444  21.542            .35             1.4           3.21429
( 1900  900  400  100 )
 29  0  0        0               0               0
( 0  0  0  0 )
 30  1.33333  34.0136           .175            .466667       7.14286
( 3000  2000  800  300 )
 31  164.356  4192.74           9.05621E-05     .0135922      200.714
( 369800  56200  1.54590E+06  10300 )
 32  .4  10.2041                .466667         0             2.85714
( 900  800  300  0 )
 33  .577778  14.7392           .466667         0             2.14286
( 1300  600  300  0 )
 34  .0888889  2.26757          .466667         0             1.07143
( 200  300  300  0 )
 35  .133333  3.40136           .35             0             2.85714
( 300  800  400  0 )
 36  0  0        0               0               0
( 0  0  0  0 )
 37  0  0        0               0               0
( 0  0  0  0 )
 38  0  0        0               0               0
( 0  0  0  0 )
 39  0  0        0               0               0
( 0  0  0  0 )
 40  2.88889  73.6962           .155556         .2            9.28572
( 6500  2600  900  700 )
 41  9.11111  232.426           1.34745E-03     .07           32.8571
( 20500  9200  103900  2000 )
 42  38.4444  980.726           .0133333        .0189189      96.4286
( 86500  27000  10500  7400 )
 43  53.7333  1370.75           .0112           .0208955      78.9286
( 120900  22100  12500  6700 )
 44  69.0222  1760.77           .0100719        .0181818      126.786
( 155300  35500  13900  7700 )
 45  40.4889  1032.88           .0115702        .0153846      116.429
( 91100  32600  12100  9100 )
 46  30.2222  770.975           .0162791        5.53360E-03   80.3572
( 68000  22500  8600  25300 )
 47  44.4444  1133.79           1.37120E-03     .0148936      118.571
( 100000  33200  102100  9400 )
 48  27.7778  708.617           4.51759E-04     .0241379      82.5
( 62500  23100  309900  5800 )
 49  29.8667  761.905           .0155556        .0285714      82.1429
( 67200  23000  9000  4900 )
 50  274.089  6992.06           .0159091        .0229508      83.5714
( 616700  23400  8800  6100 )  FIELD DELETED
 50  72.8889  1859.41           .012963         .0245614      90
( 164000  25200  10800  5700 )
          ********AVERAGE********
       NO.      NO./AREA        MFPV            MFPH          L/A
   28.264       721.02         2.92361E-03     .0364583      55.4714
SD 39.1228      998.032                                      60.0238
SE 5.53281      141.143                                      8.48865
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DEFECTS IN SILICON(VERSION 2-5/5/79)

MRI 32 JPL 6-837 SPEC D DISLOCATIONS ONLY 7-3-79

OPERATOR IS TIM MAGNIFICATION=800
UNITS= MICRONS CALIBRATION FACTOR (UNITS/PP)= .28
FRAME AREA= 250000 QTM OUTPUT WAS DIVIDED BY 1 AND CORRECTED
AVERAGE FEATURE AREA (PP)= 5

FLD (A,P,VP,HP)	NO.	NO./AREA	MFPV	MFPH	L/A
1	23	1.17347E-03	593.22	578.512	7.92857E-04
(115	111	118	121)		
2	967	.0493367	30.8778	31.6313	.0485571
(4835	6798	2267	2213)		
3	613.6	.0313061	46.1741	49.7159	.0335929
(3068	4703	1516	1408)		
4	1065.6	.0543674	27.7008	28.9855	.05305
(5328	7427	2527	2415)		
5	1162	.0592857	24.6914	26.3356	.704029
(5810	98564	2835	2658)		
6	537.4	.0274184	60.7112	66.0377	.0252
(2687	3528	1153	1060)		
7	6.4	3.26531E-04	3333.33	3181.82	6.71429E-04
(32	94	21	22)		
8	2.2	1.12245E-04	11666.7	5384.61	6.42857E-05
(11	9	6	13)		
9	.8	4.08163E-05	0	17500	6.42857E-05
(4	9	0	4)		
10	0	0	0	0	
(0	0	0	0)		
11	0	0	0	0	
(0	0	0	0)		
12	0	0	0	0	
(0	0	0	0)		
13	0	0	0	0	
(0	0	0	0)		
14	0	0	0	0	
(0	0	0	0)		
15	95.6	4.87755E-03	243.056	285.714	5.57143E-03
(478	780	288	245)		
16	.8	4.08163E-05	17500	10000	1.64286E-04
(4	23	4	7)		
17	1.8	9.18368E-05	8750	7000	1.64286E-04
(9	23	8	10)		
18	.6	3.06123E-05	0	0	5.71429E-05
(3	8	0	0)		
19	33.6	1.71429E-03	853.658	933.333	1.87143E-03
(168	262	82	75)		
20	0	0	0	0	
(0	0	0	0)		
21	0	0	0	0	
(0	0	0	0)		
22	0	0	0	0	
(0	0	0	0)		
23	272.2	.0138878	101.892	100.143	.0156714
(1361	2194	687	699)		
24	67	3.41837E-03	429.448	374.332	3.68571E-03
(335	516	163	187)		
25	0	0	0	0	
(0	0	0	0)		

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                ********AVERAGE********
        NO.       NO./AREA          MFPV            MFPH          L/A
   193.984       9.89715E-03     149.893         157.134       .0357283
SD 359.712       .0183527                                      .137255
SE 71.9425       3.67054E-03                                   .027451
 26   0   0        0                 0               0
( 0   0   0   0 )
 27   236.8   .0120816             166.667         172.839       9.31429E-03
( 1184   1304   420   405 )
 28   9   4.59184E-04              3888.89         5384.61       4.00000E-04
( 45   56   18   13 )
 29   41206.4   2.10237            .688299         27.5808       .321021
( 206032   44943   101700   2538 ) FIELD DELETED
 29   244.8   .0124898             126.354         150.215       .0122
( 1224   1708   554   466 )
 30   163.2   8.32653E-03          231.023         233.333       6.81429E-03
( 816   954   303   300 )
 31   0   0        0                 0               0
( 0   0   0   0 )
 32   0   0        0                 0               0
( 0   0   0   0 )
 33   229.8   .0117245             109.718         115.894       .0140286
( 1149   1964   638   604 )
 34   452.8   .023102              53.1108         63.1199       .0260214
( 2264   3643   1318   1109 )
 35   2279.6   .116306             16.5798         22.4575       .2556
( 11398   35784   4222   3117 )
 36   120.2   6.13265E-03          200             222.93        7.15714E-03
( 601   1002   350   314 )
 37   27.2   1.38776E-03           833.333         1076.92       1.53571E-03
( 136   215   84   65 )
 38   6   3.06123E-04              5000            4117.65       3.28571E-04
( 30   46   14   17 )
 39   83.6   4.26531E-03          319.635         324.074       5.11429E-03
( 418   716   219   216 )
 40   128   6.53061E-03           201.149         208.955       7.57857E-03
( 640   1061   348   335 )
 41   307.4   .0156837            97.629          90.4393       .0166857
( 1537   2336   717   774 )
 42   0   0        0                 0               0
( 0   0   0   0 )
 43   0   0        0                 0               0
( 0   0   0   0 )
 44   0   0        0                 0               0
( 0   0   0   0 )
 45   0   0        0                 0               0
( 0   0   0   0 )
 46   0   0        0                 0               0
( 0   0   0   0 )
 47   0   0        0                 0               0
( 0   0   0   0 )
 48   0   0        0                 0               0
( 0   0   0   0 )
 49   0   0        0                 0               0
( 0   0   0   0 )
 50   0   0        0                 0               0
( 0   0   0   0 )
                ********AVERAGE********
        NO.       NO./AREA          MFPV            MFPH          L/A
   182.76        9.32449E-03     167.625         185.46        .0251197
SD 405.849       .0207066                                      .103754
SE 57.3958       2.92836E-03                                   .014673
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