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DESIGN SPECIFICATION

FOR

MERGE OF BTREAD, PHASE1 AND PHASE2

ACCURACY ASSESSMENT PROGRAMS

Job Order 71-475

(TIRF 78-0008)

Prepared By

Lockheed Electronics Company, Inc.

Systems and Services Division

Houston, Texas

Contract NAS 9-15200

For

EARTH OBSERVATIONS DIVISION

SPACE AND LIFE SCIENCES DIRECTORATE

National Aeronautics and Space Administration

LYNDON B. JOHNSON SPACE CENTER

Houston, Texas

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15. Supplementary Notes

Reference:Implementation Specification Document for Merge of BTREAD, PHASE1, and PHASE2 Accuracy Assessment Program. (JSC-14277)

16. Abstract

Program modules BTREAD, PHASE1, and PHASE2 convert digitized ground truth data to a line and sample image format which is in registration with LACIE blind site segments. These registered line and sample ground truth data are then used to generate reports which are required to assess the accuracy of the CAMS classification and proportion estimates.

This document presents the design specification for the merge of these programs into one module

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1. SCOPE

Program modules BTREAD, PHASE1 and PHASE2 are three stand-alone programs which are executed in sequence to convert and process data from a Bendix-100 tape and create a Universal Ground Truth Tape (UGTT). The present requirement is to merge these three programs.

The merged program will increase efficiency through the elimination of the tape currently used to transmit data between BTREAD and PHASE1 and through the simplification of RUN procedures for the user. An option will be included to select the disk instead of tape for the final output.

2. APPLICABLE DOCUMENTS

1. Implementation Specification Document for Merge of BTREAD,
    PHASE1, and PHASE2 Accuracy Assessment Programs, JSC-14277,
    LEC-12348, May 1978.

2. "As-Built" Design Specification for PDP 11/45 Accuracy
    Assessment System Using Disk Data File, LEC-11881.

3. LEC IDC, from D. McCarley to A. Anderson,
    Subject: Accuracy Assessment Data Flow, PC714-149.

4. TIRF 78-0008, Modification to AA Software BTREAD, PHASE1
    & PHASE2.

3. DESIGN MODIFICATION

Programs BTREAD, PHASE1 and PHASE2 will be merged by changing
each to a subroutine and developing a program to serve as a
driver. However, the functions will not be performed in turn.
PHASE1 will be merged with BTREAD to eliminate the need for an
interim tape. Figure 1 shows the data flow through the program.
A flow diagram of the program is shown in Figure 2.

Following are the actions to be taken to accomplish the merge:

o BTMAIN will be developed to serve as the driver program.

o BTREAD will become a subroutine. As each data record from
   the B100 tape is converted, the converted array will be
   passed to PHASE1. The data file, LABEL2.DAT will no longer
   be created. LABEL1.DAT or LABEL3.DAT will be selected by
   the user and created as LABEL.DAT but merely as a scratch
   file.

   Several of the error conditions resulting from the data
   from the input tape will be handled differently. Instead
   of aborting the run, an error message will be printed, but
   the program will continue without processing the record in
   which the error occurred. The primary reason for this is to
   find all of the errors on the tape on one run.

o PHASE1 will be changed to a subroutine and will be called by
   BTREAD. The data array will be passed to it through a
   calling argument.

   The two data files created by this routine, HEAD.DAT and
   INTCPT.DAT, will be temporary files which will be deleted
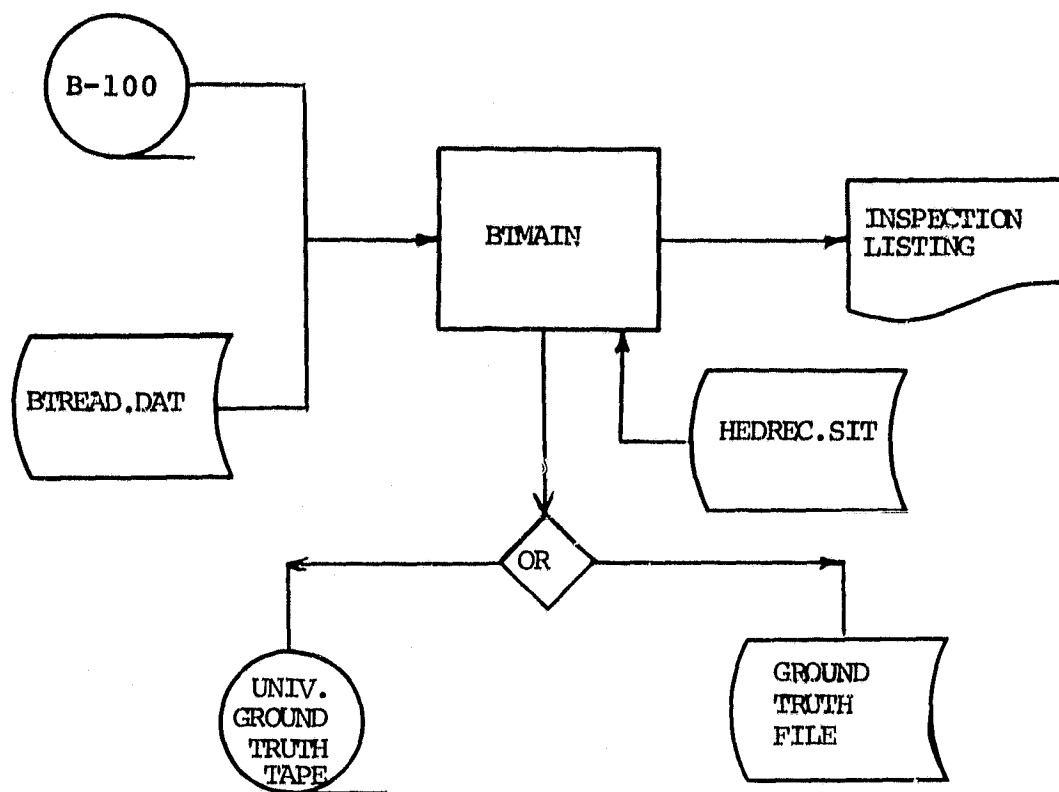   upon termination of the run.

3-1

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B-100

BIMAIN

INSPECTION
LISTING

BTREAD.DAT

HEDREC.SIT

OR

UNIV.
GROUND
TRUTH
TAPE

GROUND
TRUTH
FILE
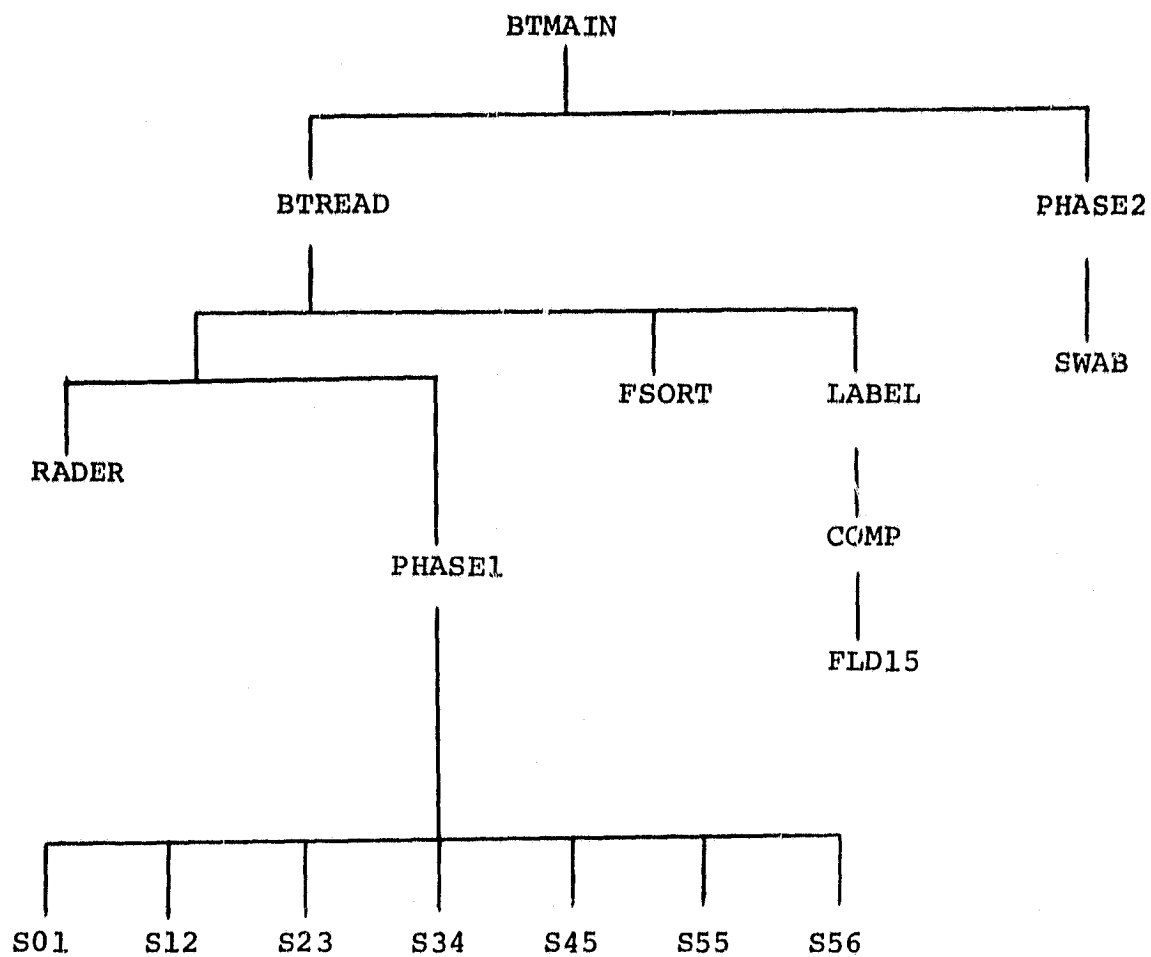
Figure 1. Program data flow

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Figure 2.   Flow Diagram of BTMAIN

The limitation that a field boundary cannot intersect an output line more than 10 times will be changed. The limitation will be increased to 20 by increasing the dimension of array X5 from (200,11) to (200,21). The corresponding array X6 will be changed from 512 to 1000.

o PHASE2 will be changed to a subroutine to be called by BTMAIN. The output will be a Universal Ground Truth Tape or a disk file at the option of the user.

The dimension of array X2 will be changed from (392,80) to (392,40) along with the necessary logic in order to permit the program to fit within the core limitations. The increase in the array size in PHASE1 will require an increase in array X1 from 512 to 1000.

If a data file is selected for the output rather than a tape, the name of the data file will be created dynamically. The conversion of the segment number from integer to ASCII and the computation of the Julian date will be performed internally.

o BTREAD.DAT will be used for user input. Four lines of data will be required:

	FORMAT
1. B-100 tape ID. Ex. MT 1 1	A2,2I2
2. Segment number, day, month, year, suffix for DB Ex. _1005_ _ _10_ _ _10_ _ _78A	4I5,A1

3. Flag to select LABEL.DAT data.
    1 = LABEL1.DAT
    3 = LABEL3.DAT
	I1

4. Output tape ID or disk selection
    MT_0_1 or XT_0_1 for tape
    DB_0   for disk.
	A2,2I2

If neither MT nor XT are entered, the selection will
default to disk. However, an entry must be available
to the program.

o   The program will be overlayed by using an Overlay Description
    Language (ØDL) file.

o   The system tape I/O routines, WTQIØ will be used instead
    of LECTAP.

Through coordination and with the concurrence of the user,
two modifications suggested in Reference 1 will not be made.
The first is the modification suggested in the second
paragraph of 3.2.2 PHASE1 MODIFICATIONS. The second is in
paragraph 1 of 3.3.1 PHASE2 MODIFICATIONS. It has been
determined that the implementation of these
modifications would not be cost effective.