

IDENTIFICATION

PRODUCT CODE: MAINDEC-08-DIVTB-A-D
PRODUCT NAME: VT20 HOST COMPUTER PROGRAM
DATE CREATED: JUN 12, 1974
MAINTAINER: DIAGNOSTIC GROUP
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1: ABSTRACT

THIS PROGRAM IS A KL8-JA DATA HANDLING ROUTINE TO BE USED WITH MD-11-DBVTA (VT20 DIAGNOSTIC TEST), TEST 21. IT RECEIVES OR ORIGINATES DATA COMING FROM OR GOING TO THE VT20. IT MAY ALSO BE USED TO "BOOT" PROGRAMS TO THE VT20. THIS PROGRAM WAS WRITTEN TO ENABLE EXERCISING 6 KL8JA 'S SIMULTANEOUSLY.

2: REQUIREMENTS (EQUIPMENT)

A. PDP-8 FAMILY COMPUTER w/ CONSOLE DEVICE AND 8K OR MORE OF CORE MEMORY

3: LOADING PROCEDURE

A. USE STANDARD PROCEDURE FOR LOADING BINARY TAPE;

4: STARTING PROCEDURE

- A. LOAD AND START AT LOCATION 200;
- B. THE PROGRAM WILL ASK YOU FOR THE NUMBER OF RECEIVERS YOU HAVE;
(1) RESPOND WITH A CARRIAGE RETURN IF YOU HAVE ALREADY ANSWERED THIS QUESTION
(2) RESPOND WITH THE NUMBER OF RECEIVERS (OR LINES) FOLLOWED BY A CARRIAGE RETURN.
- C. IF YOU RESPONDED TO QUESTION ONE WITH A NUMBER, THE PROGRAM WILL ASK YOU CODES FOR RECEIVER DEVICE CODES FOR EACH RECEIVER YOU INDICATED. ENTER EACH DEVICE CODE FOLLOWED BY A CARRIAGE RETURN. THE FIRST RECEIVER WILL BE CALLED "RECEIVER 0".

5: PROGRAM ACTION

THE PROGRAM MUST FIRST OVERLAY THE ENTIRE SKIP CHAIN AND RECEIVER SERVICE ROUTINES TO REFLECT THE DEVICE CODES ENTERED BY OPERATOR. IT NEXT SETS UP BUFFER POINTERS FOR EACH RECEIVER FOR THE NEXT 4K OF MEMORY AS WELL AS PUTTING CODE "14" IN EACH LOCATION TO PREVENT SOFTWARE "RUNAWAY". TRANSMITTER DEVICE CODES ARE SETUP FOR EACH LINE BASED ON THE RECEIVERS DEVICE CODE. A "C" IS TYPED ON THE CONSOLE DEVICE TO INDICATE THIS PROCEDURE IS BEING INITIATED. WHEN THE INITIAL SET UP IS COMPLETE, A "." (PERIOD) IS TYPED TO INDICATE THAT THE PROGRAM IS READY TO EXCEPT DATA TRANSMISSIONS FROM THE VT20(S) OR COMMANDS FROM THE CONSOLE.

6: MONITOR COMMANDS

AFTER "." IS PRINTED, THE PROGRAM IS READY TO RECEIVE, BUFFER, AND RETRANSMIT DATA FROM THE VT20(S). THERE ARE SEVERAL MONITOR COMMANDS THAT ENABLE YOU TO DEBUG AND CONTROL THE RECEIVER AND TRANSMISSION LINES. THEY CAN BE USED ALONE OR IN CONJUNCTION WITH EACH

OTHER:

A. SEND MODE (*S)*

THIS FEATURE ENABLES THE USER TO SEND DATA DIRECTLY FROM THE HOST COMPUTER'S TTY TO A SPECIFIED 'LINE', TRANSMITTER, TO USE THE SEND MODE, TYPE " *S LINE NO. & CR". IF YOU HAVE SET HOLD MODE FOR THE SPECIFIED LINE, DATA FROM THE HOST'S TTY WILL BE BUFFERED IN THE SPECIFIED LINE'S BUFFER. TYPING 'ALTMODE', ESCAPE OR " *C" WILL TAKE YOU OUT OF THIS MODE. NOT THAT SWRM MUST BE SET TO A 1 ON THE VT20'S COMPUTER, OR A RECEIVER ERROR WILL BE DISPLAYED.

B. PRINT MODE (*P)*

THIS FEATURE ENABLES YOU TO PRINT THE CONTENTS OF A LINE'S BUFFER, TO USE THE PRINT MODE, TYPE " *P LINE NO. & CR".

C. HOLD MODE (*H)*

THIS FEATURE ENABLES YOU TO HOLD A 'LINE'S' BUFFER FROM BEING SENT BACK TO THE VT20, TO ENTER, TYPE " *H LINE NO. & CR".

D. RELEASE MODE (*R)*

THIS FEATURE IS USED TO RELEASE A LINE THAT WAS HELD, TO ENTER, TYPE " *R LINE NO. & CR".

E. CLEAR MODE (*C)*

THIS FEATURE IS USED TO CLEAR ALL SOFTWARE FLAGS THAT WERE SET BY SELECTING ANY OF THE OTHER MODES, AS WELL AS RESET RESET BUFFER POINTS AND INTERNAL SOFTWARE FLAGS. USE CAUTION IF USING THIS MODE. STOP VT20 TUBES FROM TRANSMITTING TO HOST FIRST.

F. BOOT MODE (*B)*

THIS FEATURE ALLOWS THE USER TO "BOOT" PROGRAMS FROM A READER ON THE PDP-8 HOST COMPUTER TO THE VT20, TO BOOT ABSOLUTE LOADER TO THE VT20'S PDP11, (1) LOAD THE BOOTSTRAP LOADER INTO THE PDP-11 TO BE BOOTED, (2) IN ADDRESS *776 (* DETERMINED BY MEMORY SIZE) PUT THE ADDRESS OF THE FIRST LINE'S RECEIVER CSR, (3) LOAD ADDRESS *744 ON THE PDP11 AND START, (4) NOW PLACE THE ABSOLUTE LOADER TAPE (DEC-11-L2PC) IN THE PDP-8'S READER, (5) TYPE " *B" ON THE PDP-8'S CONSOLE DEVICE, (6) THE PROGRAM WILL ASK YOU FOR THE DEVICE CODE OF THE READER, RESPOND BY TYPING THE DEVICE CODE FOLLOWED BY A CARRIAGE RETURN (I.E. DEVICE CODE FOR HSR IS 1), (7) THE PROGRAM WILL NEXT ASK FOR THE DEVICE CODE OF THE LINE YOU WISH TO TRANSFER THE DATA ON, RESPOND BY TYPING THE DEVICE CODE FOLLOWED BY A CARRIAGE RETURN, AS SOON AS DEVICE CODE IS ENTERED THE TAPE WILL BE READ AND TRANSMITTED TO THE PDP-11. AFTER THE TAPE IS READ IN, TYPE

ANY KEY ON THE TTY TO RETURN MONITOR IF THE ABSOLUTE LOADER IS IN THE PDP-11 AND YOU WISH TO LOAD ANOTHER PROGRAM INTO THE PDP-11, LOAD ADDRESS *750 ON THE PDP-11, PRESS START, PLACE THE TAPE TO BE READ IN THE PDP-8/S READER AND FOLLOW STEPS 5 THROUGH 7.

G. RESTART (*A)*

BY TYPING "A" YOU WILL RESTART PROGRAM AT LOCATION 200.

H. COMBINING MODES

WHILE SEND MODE MAY "STAND ALONE", IT MAY BE USED WITH "HOLD" AND "RELEASE" MODES TO SEND "BURSTS" OF DATA FROM THE HOST TO THE VT20 UNIT.

* ALL CONTROL CHARACTERS ARE OBTAINED BY TYPING THE CTRL AND THE CHARACTER DESIGNATED KEYS SIMULTANEOUSLY.

THESE MODES ARE INTENDED AS A SINGLE LINE DEBUG TOOL, IF THEY ARE USED WHILE OTHER LINES ARE IN "CONTINUOUS TRANSMIT MODE" OVERRUN ERRORS MAY OCCUR ON THESE OTHER LINES. THESE ERRORS SHOULD NOT BE INTERPRETED AS HARDWARE FAILURES.

7. ERRORS

7.1 RECIEVER ERRORS

ERRORS ARE REPORTED AS A BACKGROUND JOB UNLESS THE STORAGE BUFFER HAS BEEN EXCEEDED. IF THIS BUFFER HAS BEEN EXCEEDED, THEN THE PROGRAM WILL TYPE "ERROR BUFFER EXCEEDED-AUTOMATIC RESTART OF PROGRAM", FOLLOWED BY A LIST OF ERRORS, A MAXIMUM OF 144 CONSECUTIVE ERRORS ARE ALLOWED.

FORMAT

RECV ERROR 5000

WHERE "2" UNDER "RECV" INDICATES THAT RECEIVER 2 (LINE 3) HAD AN ERROR. THE "5000" UNDER "ERROR" IS BROKEN DOWN TO BIT0=1 INDICATING THERE WAS AN ERROR, BIT2=1 INDICATING A FRAMING ERROR.

DBR ERROR BITS CONDITION

0=1 HAS ERROR
1=1 PARITY ERROR
2=1 FRAMING ERROR
3=1 OVERRUN ERROR