RT-11

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THE SOFTWARE DISPATCH

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RT-11 SOFTWARE DISPATCH

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The RT-11 Software Dispatch complements the **RT-11 V3B Software Dispatch Review.** It publishes new and revised Software Product Descriptions, programming notes, software problems and solutions, and documentation corrections. Much of the material is developed from answers to customer Software Performance Reports (SPRs) significant to the general audience, and is printed here to establish a reference notebook for the customer's software interests.

PRODUCTS SUPPORTED in the RT-11 SOFTWARE DISPATCH

APL-11 V1
BASIC/RT-11 V2
BASIC/RT Extensions V1
COS-350/2780
CTS-300 V3, V4
CTS-300 DICAM V1
CTS-300 DICAM II V1
CTS-300/DIS V1
DECnet/RT-V1
FOCAL/RT-11 V1B
FORTRAN GRAPHICS PKG V1.1
FORTRAN/RT-11 Extensions V1B
FORTRAN/RT-11 LSI Extensions V1
FORTRAN IV/RT-11 V2
GAMMA-11 F/B V2, V2C
INDUSTRIAL BASIC/RT-11 V1
LA-11 V3
LSP-11 V1
LV11/RT-11 Plotting Pkg.V2
MSB11-V1
SSP-11/RT-11 V1
MSB/FORTRAN IV V1
MU BASIC/RT-11 V1
PDL/RT-11 V1
PEAK-11 V2
PLOT-11/RT-11 V1.1
RT-11/03 FORTRAN Extensions V1
REMOTE/RT-11 V1
RT-11 V3, V3B
RT-11(CTS-300)LSI-11 2780 V2
RT-11/2780 V2

DISTRIBUTION

The Dispatch is directed to one software contact for each licensed Category A and B software product for one year after installation. No mailing will be made to addresses without a software contact name. Address changes and requests for information about maintenance service after the first year should be sent to the nearest DIGITAL Field Office. For address changes, include the new address and mailing label from the most recently received publication.

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Eleanor F.Hunter, Editor
Roxanne Alexander, Associate Editor

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TYPESET-8
TYPESET-11

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USER LETTER

Jan Fair, SPR Administration

Customers (and others) have brought to our attention the need for additional information regarding SPR service, particularly as it involves SPR Administration. The following represents our attempt to fulfill this need. Your comments and suggestions are most welcome.

HOW TO MAKE THE BEST USE OF SPR FORM

What WE Can Do for YOU

1. Blank SPR forms are available upon request in the desired quantities through SPR Administration (P.O.Box F) and your local office/SPR Center.

2. Copies of the SPR acknowledgment and answer are sent to the appropriate DIGITAL Office/SPR Center for their information.

3. SPRs marked *SOFTWARE ERROR or INQUIRY* will have a response for supported Category A and B products. These SPRs should refer to suspected deficiencies in the software.

4. SPRs marked *FYI or SUGGESTION* are forwarded to the pertinent software group for information purposes, and are responded to at their discretion.

5. SPRs marked *DOCUMENTATION ERROR* should report those problems dealing with software manuals or newsletters, and will be forwarded to the pertinent software group.

What YOU Can Do For US

1. Customer Name and Address and Problem Statement should always be typed or printed clearly.

2. SPRs should not be used for problems concerning software policy, software distribution, or hardware. Your local office should be contacted in these cases.

3. It would be most helpful to all concerned, if problems with patches are reported as soon as possible.

4. For security SPRs, it is imperative that the *DO NOT PUBLISH box* be marked.

5. It would be helpful if tapes submitted with SPRs are labeled (track and density), and have a directory attached.

6. Should you ever receive an unacceptable SPR response, please contact us or the appropriate SPR Center so that the response may be readdressed.

GATED LIST MODE IMAGES (PL)

When a gated list mode study is framed, spurious counts will appear in the upper right-hand cell of some images. These counts are actually the gate marks. This cell can be used to identify those images which correspond to the R-wave. The cell will not intefere with the display scaling, as long as it remains in the upper right-hand corner of the image.

Users who rotate their images may find this cell objectionable since it will then intefere with the scaling algorithm. This can be circumvented by using the GAMMA-11 translate commands (TH and TV) to move the cell out of the image. This feature can be permanently removed with the following optional patch.

```
.R PATCH

FILE NAME--
*DATANL/O
3:60014/     240   1401
*E
```

TU16 SUPPORT (SPR 11-18656 DG/RP)

GAMMA-11 V2C does not include support for the TU16 magtape (MM.SYS handler)

1. The MM handler is not included on the distribution disks.
2. The distribution magtape does not include MDUP.MM.
3. The study transfer program (TS) references device MT even if the user specifies device MM.

It should be noted that most (if not all) GAMMA-11 user with magtape have the TM11 controller which uses the MT handler. The MT handler is completely supported and there are no known problems with the support.

TU16 support can be implemented as follows

1. Users who built their GAMMA-11 system from a distribution disk must delete the MT handler from their GAMMA-11 disk and copy the MM handler from an RT-11 distribution medium. Assuming that the user's GAMMA-11 system disk is the system device and that the RT-11 distribution medium is device 'dev:', the RT-11 commands to do this are

```
DELETE/SYSTEM/NOLOG MT.SYS
COPY/SYSTEM dev:MM.SYS SY:
```

2. After configuring the GAMMA-11 system disk, the user start up file GMUSER.COM must be editted as follows

```
.EDIT GMUSER.COM
*IINSTALL MM
ASSIGN MM MT
<ESC>EX<ESC><ESC>
```

The distribution magtape can be copied as follows

Mount an RT-11 V3B disk in drive 0 and boot it. Mount a scratch disk in drive 1 and then type

```
INIT/BAD DK1:
DK1:/Init are you sure?Y
COPY/SYSTEM/NOLOG MM:/POS:-1 DK1:
COPY/BOOT DK1:xxMNFB DK1:
(where xx is RK for RK05 disks, DM for RK06,7 disks)
DELETE/NOQ DK1:MT.SYS
```

Perform the system generation procedure, Section 1.3 of the GAMMA-11 SYSTEM REFERNECE manual and then perform the edit in step 2 above.

RT-11 SOFTWARE DISPATCH
CUMULATIVE INDEX
SEPTEMBER 1978

This is a complete listing of all articles for current versions of RT-11 and related products. In the case of subordinate software, missing sequence numbers may pertain to problems unique to interaction with previous versions of the same product.

IMPORTANT!

Retracted articles are indicated: RETRACTION.

Flags are currently being installed for all articles. The flags and definitions are as follows:

M = Mandatory patch. These are critical patches which each customer is required to install.

O = Optional patch. These articles are applicable only if the reported problems have occurred at the customer site or if they are unique to his operation.

R = Restriction. These problems are not patchable in released software. Restrictions are reviewed and corrected when possible as part of the normal release cycle.

N = NOTE. This information may be helpful to the user.

Component	Sequence	Mon/Yr
DECFORM		
DECFORM ERRORS	01	Apr 77
REPLACEMENT PAGES	02	Apr 77
SEARCHMODE AND RENAM PROBLEM - NEW VERSION NUMBER	03	Jun 77
EXTRA CHARACTERS AT STATEMENT END	04	Jun 77
FOCOMP INCORRECTLY ALLOCATES AN EXTRA CHARACTER	05	Nov 77
REPLACEMENT PAGES	06	Aug 77
DECFORM RESTRICTIONS	07	Sep 77
CONDITIONAL GOTO AND CONDITIONAL SKIP	08	Oct 77
DECFORM PROBLEMS AND RESTRICTIONS	09 R	Nov 77
HANG ON EXIT	10	Jan 78
TWO PROBLEMS IN FOCOMP	11 M	Feb 78
EOF AFTER CHANGED RECORD	12 M	Mar 78
LOST RECORD ON DUPLICATE KEY	13 M	Apr 78
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EXCITING DECFORM VIA FIVE-PART QUESTION	15 M	May 78
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IMPROPER GLOBAL INFORMATION	01	Jul 77
COMMENT CAUSES ERROR	02	Aug 77
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Component	Sequence	Mon/Yr
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LEGAL CHARACTERS IN ISAM RECORDS	05 R	May 78
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Component	Sequence	Mon/Yr
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PROBLEM WTIH ISAM INPUT	06 M	Jan 78
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Component	Sequence	Mon/Yr
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NEGATIVE NUMBER ENDING IN ZERO	11 M	Mar 78
LOST RECORD ON DUPLICATE KEY	12 M	Apr 78
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DICOMP		
IMPROPER GLOBAL INFORMATION	01	Nov 77
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MULTIVOLUME FILES ON MAGTAPE	01 N	Feb 78
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DOCUMENT ERROR	03 N	Apr 78
FILEX		
RESTRICTION ON FILEX	01 R	Nov 77
FILEX INFORMATION AND RESTRICTION	02 R	Mar 78
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BLANK RECORDS	04 M	Sep 78
ISMUTL		
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MORE INPUT RECORDS THAN SPECIFIED	12 M	Jul 78
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RECORDS BEING LOST	06 M	Feb 78

Component	Sequence	Mon/Yr
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SORTM		
NEGATIVE NUMBERS IN SORT/MERGE	Ø1	Nov 77
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ERR 16 IN TSD	Ø5 M	Jul 78
MERGE WITH DESCENDING KEY	Ø6 M	Sep 78
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LOCASE CONVERTS UNDERLINE TO RUBOUT	Ø4	Oct 77
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MULTICHANNEL SINGLE RATE SCHMIT TRIGGER SWITCH BOUNCE	Ø2 M	Dec 76
CONTINUOUS SAMPLING: CONDITIONAL ASSEMBLY ERRORS	Ø3 M	Jul 77
CONTINUOUS SAMPLING: DMA WITH DUAL SAMPLE + HOLD	Ø4 M	Jul 77
DOCUMENTATION CORRECTIONS	Ø5 M	Nov 77
LV11/RT-11 PLOTTING PACKAGE V2		
SUBROUTINE PLOT DOES NOT CORRECTLY REPRODUCT VT11 PICTURE	Ø1 M	Apr 78

Component	Sequence	Mon/Yr
MU BASIC/RT-11 V1		
BUILDING MU BASIC/RT-11 UNDER RT-11 V2C	Ø1	Feb 76
REMOTE TERMINAL SUPPORT ON MODEMS	Ø2	May 76
OVERLAY... LINE WORKS INCORRECTLY	Ø3	May 76
USING IMMEDIATE MODE "GOSUBs"	Ø4	Dec 76
CLOCK LOSES TIME ON RT-11 WHEN RUNNING MU BASIC	Ø5	Jul 77
REM STATEMENTS	Ø6	Feb 78
ADDITIONAL FILES ON RELEASE KIT (MUB*.*)	Ø7 N	May 78
MU BASIC/RT-11 SYSTEM INSTALLATION GUIDE DEC-11-LIBMA-A-DN1		
REPLACEMENT PAGES	Ø1	Jan 77
REPLACEMENT PAGES	Ø2 N	Jan 78
REPLACEMENT PAGES	Ø3 N	Jan 78
PDL/RT-11 V1B		
CLARIFICATION OF SEARCH FAILURE IN SUBROUTINE FIND	Ø1 N	Jul 78
FIND SUBROUTINE	Ø2 R	Jul 78
PATCHES TO PDL	Ø3 M	Jul 78
SUBROUTINE QKGT	Ø4 M	Jul 78
PDL SUBROUTINE 'RDAA'	Ø5 M	Sep 78
PDL PEAK ALGORITHM WILL NOT RECOGNIZE VALID PEAKS	Ø6 M	Sep 78
PEAK-11 V1		
"MREPRT" AND "REPRT" GET CONFUSED	Ø1 M	Aug 78
REMOTE/RT-11 V1		
SCHEDULER DOES NOT PROPERLY SET PROCESSOR PRIORITY	Ø1 M	May 76
NOEDIT- Ø HALTS	Ø2 M	May 76
NUSERS=1 STAYS IN A FILE MESSAGE LOOP	Ø3 M	May 76
INCORRECT SWAP AREA ALLOCATION FOR FOUR OR MORE USERS	Ø4 M	May 76
REBOOT FROM SATELLITE DURING EDIT HANGS HOST	Ø5 M	Jun 76
HARD ERROR ON LOOKUP IS FATAL	Ø6 M	Jun 76
SECONDARY MODE PROGRAM LOAD FEATURE NOT COMPLETELY FUNCTIONAL	Ø7 M	Jun 76
ONE SECOND TIMER FOR LINE TIMEOUTS IS SET INCORRECTLY	Ø8 M	Aug 76
LINE FEEDS MAY CAUSE SYSTEM ERRORS--ASSEMBLY ERROR WITH DIAL AND NODDC	Ø9 M	Aug 76
PROPER GENERATION OF REMOTE IS DEPENDENT ON MODULE ORDER	1Ø M	Aug 76
ASCII CODES 173 AND 174 DO NOT PRINT	11 M	Aug 76
IMPROPER FILLER HANDLING FOR VTØ5	12 O	Aug 76
SYSTEM CRASHES IF RUN IN FOREGROUND WITHOUT /N	13 O	Aug 76
"UNSAVE" COMMAND CAUSES SYSTEM ERRORS	14 M	Dec 76
FLET WILL REMOVE MORE THAN ONE USER FROM THE WAIT QUEUE	15 M	Dec 76
STACK FOR USER THREE IMPROPERLY SET	16 O	Dec 76
SECONDARY MODE LOADS DO NOT OPERATE PROPERLY	17 M	Jan 77
@START COMMAND GIVEN ON TERMINAL WITHOUT SATELLITE CAUSES CRASH	18 O	Jan 77
"RTSIM" DOES NOT SUPPORT 5Ø Hz LINE CLOCK	19 O	Jan 77
CHANNEL ACTIVE ERROR	2Ø M	Mar 77
THREE WORDS LOST ON DOWNLINE LOAD	21 M	Mar 77
CSISPC NOT PROPERLY SIMULATED	22 M	May 77
EXCEEDING CHARACTERS PER LINE LIMIT	23 M	Oct 77
UNASSIGNED	24	XXX XX
@RE IN THE SATELLITE DOES NOT WORK	25 R	Mar 78
"HANG" CONDITIONS	26 R	Apr 78
UANSSIGNED	27	XXX XX
USING KG-11 CRC CALCULATOR	28 M	Aug 78
PASTE CAUSES LINE DUPLICATION	29 M	Aug 78
"DAISY CHAIN" ARRANGEMENT IN RTSIM.MAC	3Ø M	Aug 78
OPTIONAL RMON IS OMITTED FROM RTS1M BY DEFINING NORMON=Ø	31 M	Sep 78

Component	Sequence	Mon/Yr
RT-11 V3		
DOCUMENTATION		
TYPOGRAPHICAL ERRORS	Ø1 N	Mar 78
ERROR IN FOREGROUND/BACKGROUND DEMONSTRATION	Ø2 M	Aug
EDIT		
EDIT DOES NOT OPERATE CORRECTLY UNDER XM MONITOR	Ø1 M	Mar 78
MACRO		
.NARG FAILS WHEN AUTOMATIC LABEL GENERATION IS USED	Ø1 M	Apr 78
MISCELLANEOUS		
GETSTR AND PUTSTR ROUTINES FOR IN-LINE CODE	Ø1 M	Jun 78
ERROR IN THE CONCAT ROUTINE	Ø2 M	Jun 78
MONITOR		
INCORRECT IDENTIFIER IN .TWAIT REQUEST CAUSES PROBLEMS	Ø1 M	Mar 78
.CHAIN, .EXIT FROM VIRTUAL JOB; USR MOVING INTO PAR1 AREA	Ø2 M	Apr 78
PATCH TO INTERRUPT EXIT ROUTINE	Ø3 M	Apr 78
IMPROPER HANDLING OF THE KW11-P CLOCK	Ø4 M	May 78
SPECIFYING 50-CYCLE CLOCK SUPPORT DURING SYSGEN OPERATIONS	Ø5 M	Jun 78
EDITORS AND V3B MONITORS	Ø6 M	Jun 78
TYPING NON-ASCII FILES TO CONSOLE AFTER ISSUING A GTON HANGS THE SYSTEM	Ø7 M	Jun 78
LINK/FRUN FAILS WHEN PROGRAM IS OVERLAYED AND USES LIBRARIES	Ø8 M	Jul 78
MULTITERMINAL CORRECTIONS	Ø9 M	Aug 78
PATCH TO XM ADDRESS CHECKING	1Ø M	Aug 78
FIXES FOR TWO FB/XM PROBLEMS	11 M	Aug 78
TERMINATING CONSOLE OUTPUT	12 M	Aug 78
SOURCES		
UNRESOLVED DIFFERENCES IN DEMOX1.MAC	Ø1 M	Aug 78
DISTRIBUTED MAGTAPE HANDLER CORRECTIONS	Ø2 M	Sep 78
UTILITIES		
DUP DEFAULT FILE SIZE AND NULL FILE TYPES ARE INCORRECT	Ø1 M	Mar 78
DIR MAY INCORRECTLY LIST DIRECTORIES OF MAGTAPES	Ø2 M	Mar 78
/L OPTION TO PIP MAY CUASE SYSTEM CRASH	Ø3 M	Mar 78
LINK OUTPUT INVALID IF OBJ HAS AN EMPTY GSD RECORD	Ø4 M	Mar 78
PAT GIVES FATAL ERROR IF OBJ HAS AN EMPTY RECORD	Ø5 M	Apr 78
UNASSIGNED	Ø6	XXX XX
EDIT VT11 DISPLAY FUNCTIONS WILL NOT OPERATE UNDER XM MONITOR	Ø7 M/R	Apr 78
TRANSFERS IN INTERCHANGE FORMAT WHEN NO SYSTEM DATE IS GIVEN	Ø8 M	Jun 78
DUP SCAN RATE FOR FLOPPY	Ø9 M	Jun 78
DUP /I AND /W SWITCHES DO NOT WORK PROPERLY	1Ø M	Jun 78
LINK/FRUN FAILS WHEN PROGRAM IS OVERLAYED AND USES LIBRARIES	11 M	Jul 78
DUP DOES NOT DIFFERENTIATE BETWEEN DELETED .BAD FILES AND PERMANENT ONES	12 M	Jul 78
ERRORS IN FILEX INTERCHANGE FORMAT	13 M	Jul 78
LINK PRODUCES INCORRECT .LDA FILES	14 M	Sep 78
RT-11 V3B		
DOCUMENTATION		
ERROR IN FOREGROUND/BACKGROUND DEMONSTRATION	Ø1 M	Aug
MISCELLANEOUS		
ERRORS IN THE SYSGEN CONDITIONAL FILE	Ø1 M	Jul 78
MONITOR		
SOURCE PATCHING PROCEDURES FOR V3B	Ø1 M	Aug 78
MULTITERMINAL CORRECTIONS	Ø2 M	Aug 78
SINGLE JOB TIMER SUPPORT CORRECTIONS	Ø3 M	Aug 78
FIXES FOR TWO FB/XM PROBLEMS IN VP3B	Ø4 M	Aug 78
TERMINATING CONSOLE OUTPUT	Ø5 M	Aug 78

Component	Sequence	Mon/Yr
EDITORS AND V03B MONITORS	06 O	Aug 78
SEEK IN RK DRIVER	07 M	Aug 78
RL01 CONTROLLER VECTOR AT 160	08 M	Aug 78
FPU EXCEPTION HANDLING IN XM MONITOR	09 M	Sep 78
SOURCES		
UNRESOLVED DIFFERENCES IN DEMOX1.MAC	01 M	Jul 78
ISSUING SEEKS TO DX HANDLER IN XM CAUSES RANDOM SYSTEM FAILURES	02 M	Sep 78
DISTRIBUTED MAGTAPE HANDLER CORRECTIONS	03 M	Sep 78
SYSTEM HANDLERS		
RL01 HANDLER CORRECTIONS	01 M	Sep 78
MISCELLANEOUS		
ERRORS IN THE SYSGEN CONDITIONAL FILE	01 M	Jul 78
UTILITIES		
ERRORS IN FILEX INTERCHANGE FORMAT	01 M	Jul 78
LINK PRODUCES INCORRECT .LDA FILES	02 M	Sep 78

RT-11/2780 V2

CORRECTIONS TO 2780 PACKAGE	01	Sep 77
RUNNING 2780 ON RT-11 V3	02	Nov 77
PATCHING THE 2780 IN RT-11 V3	03 M	Sep 78

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Software Product Description

PRODUCT NAME: RT²/PDT, Version 3B **SPD 12.13.0**

DESCRIPTION:

RT²/PDT software provides, on a PDT-11, a Single Job (SJ) or Foreground/Background (FB) execute-only environment for applications that the user develops on an RT-11 Version 03B system. RT²/PDT includes a license to use, on a PDT-11 based system, a specified subset of RT-11, Version 03B. The license-only option allows duplication for a PDT-11 based system of special PDT monitors (included in the RT²/PDT software) as well as the specified subset of RT-11. It is the user's responsibility to integrate his application(s) with the PDT monitor, and to transport the resulting run-time system from the RT-11 Version 03B system to the target PDT-11 system.

RT²/PDT Version 03B licenses the user to copy only the following modules as distributed from DIGITAL:

From RT-11 Version 03B distribution:

MODULE	DESCRIPTION
PIP.SAV	Peripheral Interchange Program for file copying
DUP.SAV	Disk Utility Program for volume maintenance
DIR.SAV	Directory program for listing volume directories

From RT²/PDT distribution:

MODULE	DESCRIPTION
SWAP.SYS	Monitor scratch blocks for system swapping
PDMNSJ.SYS	PDT-11 Single Job Monitor
PDMNFB.SYS	PDT-11 Foreground Background Monitor
PDMNSJ.BL	PDT-11 Base Line Single Job Monitor
PDMNFB.MT	PDT-11 Multiterminal Foreground/Background Monitor
LP.SYS	Line Printer Handler
TT.SYS	Terminal Handler for Single Job Monitors

A single-use license is available to operate BASIC-11/RT-11, Version 2, as optional software under RT²/PDT. Applications developed under FORTRAN IV/RT-11 may be copied under the RT²/PDT license, along with the FORTRAN IV OTS. The FORTRAN IV compiler may not be used on RT²/PDT.

MINIMUM HARDWARE REQUIRED:

PDT-11/150-AA, with 16K bytes of memory. An RT-11 Version 03B system is required for developing applications software and integrating the RT²/PDT monitor.

OPTIONAL HARDWARE:

- 30K words (60K bytes) of main memory
- RXT-11-EA Floppy diskette system
- LA180-P line printer
- LA36 hardcopy terminal
- VT52 or VT100 video terminal
- DFT11-AB Cluster Controller (3 EIA Ports)

PREREQUISITE SOFTWARE:

RT-11 Version 03B Operating System (with category A support).

OPTIONAL SOFTWARE:

BASIC-11/RT-11, Version 2

TRAINING CREDITS:

None

SUPPORT CATEGORY:

B — Software Support will be provided as stated in the Software Support Categories Addendum to this SPD.

UPDATE POLICY:

No updates are planned for this product.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources Agreement between Purchaser and DIGITAL.

A single-use license only option is a license to copy the software previously obtained under license, and use such software in accordance with DIGITAL's Standard Terms and Conditions of Sale. The category of support applicable to such copied software is Category C.

The following key (Y, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJV33-AY = binaries on floppy diskette.

Y = RX01 Floppy Diskette
Z = No hardware dependency

Standard Options

QJV33 -A— Single-use license, binaries, documentation, support services (media: Y)

QJV33 -D— Single-use license only, no binaries, no documentation, no support services (media: Z) Minimum quantity: 50. Requires one QJV33-A option.

ADDITIONAL SERVICES:

None

ADDENDUM
SOFTWARE SUPPORT CATEGORIES

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

CATEGORY A

1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.
2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.
3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

CATEGORY B

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

CATEGORY C

SOFTWARE is provided on an 'as is' basis. Any software services, if available, will be provided at the then current charges.

DIGITAL shall have the right to make additional charges for any additional effort required to provide services resulting from customer use of other than current unaltered release of the SOFTWARE operated in accordance with the SPD.

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Software Product Description

PRODUCT NAME: GAMMA-11 F/B, Version 2C **SPD 15.60.3**

DESCRIPTION:

GAMMA-11 F/B is a hardware/software system for nuclear medicine. GAMMA-11 is designed to acquire, store, display and manipulate images from the gamma camera in order to supply quantitative, meaningful clinical information.

In the foreground/background configuration, gamma camera data acquisition can take place independent of another process. This configuration includes two terminals. One terminal is designated the foreground acquisition terminal for the gamma camera and controls the setup and initiation of data collection. The other terminal, designated the background terminal, can be used simultaneously with the foreground terminal for data analysis by GAMMA-11 programs, for program development in BASIC or FORTRAN, or for running any other programs that do not need immediate access to the disks for successful completion.

In the single job configuration, only one terminal is included. This configuration has all the capabilities of the foreground/background system, except that data acquisition and processing may not be carried out simultaneously.

Data Acquisition

GAMMA-11 programs allow data acquired to be stored in five different size matrices for static studies and four different size matrices for dynamic studies. Thus a user can choose the proper size and resolution for the job at hand. List mode acquisition (i.e., unstructured data) is also available. Static studies can be collected and terminated by a preset time, preset count, or matrix element overflow. Static studies can be linked to provide easy collection of and access to sequential static views. Dynamic studies are collected at a specified frame rate. List mode studies can be acquired with an effective frame rate of 100 frames per second. An external synchronizing time marker can be included when acquiring either dynamic or list mode studies. These acquisition modes are called Gate Synchronized Acquisition (GSA) and Physiological List Mode (PLM), respectively, and are used primarily for cardiac studies.

GSA data is stored in either 32x32 or 64x64 matrices. The maximum number of images per study is determined by the amount of available memory. During acquisition, images are displayed "live" on the video display. The heart cycle time (or the time between external synchronizing events) is continously monitored and displayed. For GSA data acquisition, the operator can either choose fixed time intervals for each image or allow the program to divide the heart cycle time (averaged over 30 seconds) by the number of images chosen. A heart cycle time window can be selected so that if a given cycle time falls outside of this window, then the following cycle is rejected.

NOTE: GSA must be run from the background terminal.

Physiological List Mode studies are acquired with 1 millisecond time intervals.

Data is reframed by creating a number of images based on the interval between successive external time markers.

With dual isotope collection, two separate images (one for each isotope) can be collected simultaneously. (Note: The gamma camera must also have the dual isotope option). This capability does not apply to GSA or PLM.

Once collection parameters and procedures are established, they can be set up as protocols or predefined studies. Up to 20 predefined studies can be used to speed set up, minimize error, and standardize collection procedures.

Patient Study Index

Once collected, patient studies are identified by a system-generated index file. Each study is identified by patient name, number, organ, study type and acquisition date. Studies are selected for analysis by index number; the user need not be concerned with the physical location of disk data.

Data Analysis and Display

Data is displayed on the VSV01 color video monitor. The VSV01 color display includes a hardware character generator permitting display, along with the image, of patient identification and image counting statistics. All photographs taken from the display are thus positively identified.

Display Features:

- Color or monochrome display
- Sixty-four colors; 16 colors simultaneously displayed
- Up to 31 color spectra can be defined
- Intensity or isometric display

- Four or eight image display (16 with optional VSV01 bit maps)
- Normal or magnified display
- Lower and upper thresholding with or without contrast enhancement
- Dual/full size image display (split screen or overlayed)
- Negative image display

Data Manipulation Features:

- Skip frames (forward or backward)
- Sequential frame add
- Image rotation (90 degree steps)
- Image translation (horizontal and vertical)
- Non-uniformity correction
- Frame algebra — add, subtract, multiply, divide or merge frames; add, subtract, or multiply frames by a constant
- Nine point smoothing
- Nine save areas for temporary storage of images or ROI curves
- Up to 55 optional save areas for temporary storage of images
- Slice profiles (vertical or horizontal)
- Isocontour generation
- Interpolation of images (optional VSV01 bit maps required for 256 x 256 interpolation)

Region of Interest Features:

- Regular (keyboard controlled)
- Irregular (joystick controlled)
- Circumference or fill mode definition (irregular)
- Pertinent count rate information for each region displayed with image
- Up to 12 regions can be displayed.
- Simultaneous display of curves and images with ROIs outlined
- Select regions by thresholding (irregular)
- Select regions in magnified mode (irregular)
- Time/activity curves can be displayed normally, averaged, or overlayed.
- Selected portions of ROI curves can be expanded.

Dynamic Playback:

- Sequences of preprocessed images can be displayed in cine mode
- Two to four playback buffers can be combined into one and displayed synchronously.
- Speed and direction of playback can be controlled via the joystick or keyboard.

Predefined Analysis Features:

- Multiple commands can be entered on a single line.
- Predefined analysis procedures (macros) can be created, edited, saved, and executed from the system disk.
- Predefined analysis can be linked with predefined study acquisition to semi-automate the system.
- Macros can call FORTRAN or BASIC programs; special calls allow macro re-entry.

Miscellaneous Features:

- Routine for patient positioning and detection of a valid gate signal
- Dual isotope display and processing
- List mode analysis does not require additional disk space for recontructed images
- Comment editor

Utility Programs

Study Deletion — This function requires user verification to prevent accidental deletion of important data.

Study Transfer — This function transfers patient studies between any two RT-11 file structured devices (disks, magtape, floppy disks, etc.)

MINIMUM HARDWARE REQUIRED:

Any UNIBUS PDP-11 with line frequency clock that meets the following main memory requirements:

- 32K bytes for single job operation with RK05 as system disk
- 64K bytes for foreground/background operation with RK05 as system disk
- 64K bytes for single job operation with RL01, RK06, or RK07 as system disks
- 96K bytes for foreground/background operation with RL01, RK06, or RK07 disks

and includes,

MASS STORAGE: (one of the following)

- One RK05, RL01, or RK06 disk with a second disk or RT-11 supported magnetic tape unit, or
- One RK07 disk and a RT-11 supported magnetic tape unit

TERMINALS:

- Any console terminal supported by the prerequisite software. (Two terminals are required for foreground/background operation. The foreground terminal must operate at 1200 baud or greater.)

Display:

- VSV01 Video Display

Interface: (One of the following)

- NC11 gamma camera interface with KW11-P (AR11 needed for foreground/background operation and/or GSA or PLM), or
- NCV11 gamma camera interface (includes KWV11; AR11 not needed)

OPTIONAL HARDWARE SUPPORTED:

- Any RT-11 supported mass storage device for off-line data storage except TA11 cassette
- A system total of 256K bytes main memory

PREREQUISITE SOFTWARE:

- RT-11, Version 3B, or later release of Version 3
- BASIC-11/RT-11, Version 2, or later release of Version 2

OPTIONAL SOFTWARE SUPPORTED:

FORTRAN IV/RT-11, Version 2 or later release of Version 2

TRAINING CREDITS:

TWO (2) — Applies only to options that include support services. Consult the latest Educational Services Catalog at your local office for the available courses, course requirements, and guidelines.

SUPPORT CATEGORY:

A — Software Support will be provided as stated in the Software Support Categories Addendum to this SPD.

UPDATE POLICY:

Software Updates, if any, released by DIGITAL during the one (1) year period following installation, will be provided to the customer for a media charge (includes no installation). After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources Agreement between Purchaser and DIGITAL.

Source and/or listing options are only available after the purchase of at least one binary license and after a source license agreement is in effect.

The following key (A, D) represents the form of power source for the product and must be specified at the end of the 'GMA11' number, i.e., GMA11-AA= system using 115 volt/60 hertz power.

A = 115 volt/60 Hertz
D = 230 volt/50 Hertz

The following key (D, E, Q, T, Z) represents the distribution media for the product and must be specified at the end of the order number, e.g., QJ723-AD = binaries on 9-track magnetic tape.

D = 9-track Magnetic Tape
E = RK05 Disk Cartridge
Q = RL01 Disk Cartridge
T = RK06 Disk Cartridge
Z = No hardware dependency

Standard Options

GMA11 -A— GAMMA-11 single job system includes hardware, single-use license for GAMMA-11, RT-11, BASIC-11/RT-11, binaries on RK05 disk, documentation, support services (power: A, D)

GMA11 -B— GAMMA-11 single job system, includes hardware, single-use license for GAMMA-11, RT-11, BASIC-11/RT-11, binaries on RK06 disk, documentation, support services (power: A, D)

GMA11 -C— GAMMA-11 single job system includes hardware, single-use license for GAMMA-11, RT-11, BASIC-11/RT-11, binaries on RL01 disk, documentation, support services (power: A, D)

Source/Listing Options

QJ721 -E— All GAMMA-11 sources (media: D, E, Q, T)

Upgrade Options

The following option is available as an upgrade kit from GAMMA-11, Version 7, for use on the same single CPU on which GAMMA-11, Version 7, is licensed. The license previously granted for GAMMA-11, Version 7, shall be extended to cover this upgrade.

QJ723 -A— Single-use license for GAMMA-11 F/B, RT-11, BASIC-11/RT-11, binaries, documentation, support services (media: D, E)

Update Options

Users of GAMMA-11 F/B, Version 2, whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QJ721 -H— Binaries, GAMMA-11 documentation , (media: D, E, Q, T)

Users of GAMMA-11 F/B, Version 2, whose specified Support Category warranty has not expired may order under license the following software update for the then current media charge. The update is distributed in source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QJ721 -W— Binaries, GAMMA-11 documentation , (media: D, E, Q, T)

Micellaneous Options:

QJ721 -G— Pre-delivery kit (media: Z)

ADDITIONAL SERVICES:

None

ADDENDUM
SOFTWARE SUPPORT CATEGORIES

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

CATEGORY A

1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.
2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.
3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

CATEGORY B

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

CATEGORY C

SOFTWARE is provided on an 'as is' basis. Any software services, if available, will be provided at the then current charges.

DIGITAL shall have the right to make additional charges for any additional effort required to provide services resulting from customer use of other than current unaltered release of the SOFTWARE operated in accordance with the SPD.

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Software Product Description

PRODUCT NAME: FORTRAN GRAPHICS PACKAGE, Version 1.1 **SPD 15.81.2**

DESCRIPTION:

The FORTRAN Graphics Package is a collection of FORTRAN-callable routines for users of FORTRAN on RT-11, RSX-11M, RSX-11D, or IAS operating systems who wish to use the graphics capabilities of the VT55 terminal and the VT11 or VS60 display processors. The package includes two sets of routines: a PLOT55 routine for the VT55 graphics terminal, and DECgraphic-11 routines for the VT11 and VS60 display processors.

PLOT55

The PLOT55 routine is accessed by a FORTRAN CALL statement. The routine has four arguments that allow the user to construct two graphs, set their mode (histogram or point-plot), add vertical and/or horizontal grid lines and manipulate graphics cursors (short vertical bars used for coordinate identification). In multi-user systems, several VT55 terminals can be in use simultaneously.

DECgraphic-11

The DECgraphic-11 package provides support for the VT11 or VS60 display processors in either of two ways:

- As a component of a satellite GT41 or GT43 (for the VT11), or GT62 (for the VS60) system. This "intelligent terminal" is connected to an RSX-11M, RSX-11D, or IAS host system by a standard asynchronous serial line terminal interface. The number of satellite intelligent terminal subsystems is limited only by the number of terminals that the host system supports.
- As a peripheral on the PDP-11 UNIBUS. The package includes a device driver that enables operation of one VT11 or one VS60 on an RT-11 or RSX-11M system configuration.

Over 60 routines are provided in the DECgraphic-11 package. They allow the FORTRAN programmer to display, modify and interact with graphic information at the display console. Through CALL statements, the user can display points, vectors, text, and graph data. The subpicture feature enables the programmer to display repeated images. Special graphic routines enable the programmer to display an entire array of data with one subroutine call. General "attention handling" facilities for the light pen, LK11 push-button box, and LK40 keyboard are also included in the package. Subroutines are available that enable the programmer to display menus for light pen selection. Miscellaneous routines enable the programmer to move, modify, delete, and otherwise manipulate images.

DECgraphic-11 also provides support for the special hardware features of the VS60. The user can alter the scale at which images and text strings are displayed, "window" the display viewing area over a large "drawing area," and select output on an optional second display scope of the VS60.

Most of the routines in the DECgraphic-11 package are available on either the satellite or standard peripheral configurations. In satellite configurations, however, the programmer has the additional capability to construct user-controlled programs in the satellite processor. This permits "attention handling" and other simple tasks to be carried out without affecting the host processor.

MINIMUM HARDWARE REQUIRED:

RT11 SUPPORT

- Any valid RT11 operating system configuration supporting FORTRAN IV/RT-11 that includes:
  1. A UNIBUS PDP-11 processor.
  2. At least 32K bytes of memory.
  3. An RL11, RK11, or RK611 disk cartridge drive with an additional disk drive, or one of the following magnetic tape systems (for software distribution):
     TME11 controller with TE10 transport
     TMB11 controller with TS03 transport.

FOR VT55 GRAPHICS TERMINAL SUPPORT

4. A VT55 graphics terminal with asynchronous serial line interface (in place of the console terminal).

FOR VT11 OR VS60 DISPLAY PROCESSOR SUPPORT AS A UNIBUS PERIPHERAL

5. A VT11 or VS60 display processor.

RSX-11M, RSX-11D, IAS SUPPORT

- Any valid RSX-11M, RSX-11D, or IAS operating system configuration supporting either FORTRAN IV/IAS-RSX or FORTRAN IV-PLUS that includes:
  1. A UNIBUS PDP-11 processor.
  2. At least 48K bytes of memory.

3. An RL11, RK11, or RK611 disk cartridge drive and controller with an additional disk drive on one of the controllers, or one of the following magnetic tape systems (for software distribution):
   TME11 controller with TE10 transport
   TMB11 controller with TS03 transport
   TJE16 (TUE16 for PDP-11/70) controller with TE16 transport.

FOR VT55 GRAPHICS TERMINAL SUPPORT

4. A VT55 graphics terminal with any asynchronous serial line interface supported by the operating system.

FOR VT11 OR VT60 DISPLAY PROCESSOR SUPPORT AS A UNIBUS PERIPHERAL (RSX-11M only)

5. A VT11 display processor (display file must reside in the lowest 56K bytes of memory), or VS60 display processor.
6. Not more than 248K bytes of memory.

FOR VT11 or VS60 DISPLAY PROCESSOR SUPPORT AS A SATELLITE SYSTEM

7. A DL11 single-line asynchronous serial interface or one line of a DZ11 or DH11 multiplexer for each satellite system.

   And one of the following display processor subsystems (satellite system must include FORTRAN IV (QP230) if FORTRAN IV-PLUS is run on the host system):

8. For VT11 support, one of the following:

   A GT41 or GT43 display processor subsystem.

   A UNIBUS PDP-11 processor, 32K bytes of memory, an asynchronous serial line interface compatible with a DZ11, DL11, or DH11, a programmer's processor console, an LA36 or LK40 terminal keyboard, and a VT11 display processor.

9. For VS60 support:

   The GT62 display terminal system or equivalent.

OPTIONAL HARDWARE:

VT11 or VS60 based satellite display processor subsystems support the RX11 floppy disk system for local storage and loading of display files.

PREREQUISITE SOFTWARE:

One of the following operating systems is required:

- RSX-11M, Version 3.1, and either FORTRAN IV/IAS-RSX, Version 2, or FORTRAN IV-PLUS, Version 2.5
- IAS, Version 2, and either FORTRAN IV/IAS-RSX, Version 2, or FORTRAN IV-PLUS, Version 2.5
- RSX-11D, Version 6.2, and either FORTRAN IV/IAS-RSX, Version 2, or FORTRAN IV-PLUS, Version 2.5

Note that if FORTRAN IV-PLUS is selected for RSX-11M, RSX-11D, or IAS based host systems that FORTRAN IV will also be required for the graphic satellite.

- RT-11, Version 3B, SJ or FB monitors, and FORTRAN IV/RT-11, Version 2 or later

OPTIONAL SOFTWARE:

None

TRAINING CREDITS:

None

SUPPORT CATEGORY:

B — Software Support will be provided as stated in the Software Support Categories Addendum to this SPD.

UPDATE POLICY:

Software Updates, if any, released by DIGITAL during the one (1) year period following installation, will be provided to the customer for a media charge (includes no installation). After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

ORDERING INFORMATION:

All binary licensed software, including any subsequent updates, is furnished under the licensing provisions of DIGITAL's Standard Terms and Conditions of Sale, which provide in part that the software and any part thereof may be used on only the single CPU on which the software is first installed, and may be copied, in whole or in part (with the proper inclusion of the DIGITAL copyright notice and any DIGITAL proprietary notices on the software) only for use on such CPU. All source licensed software is furnished only under the terms and conditions of a separate Software Program Sources Agreement between Purchaser and DIGITAL.

The following key (D, E, Q, T) represents the distribution media for the product and must be specified at the end of the order number,i.e., QJ647-XD = sources on 9-track magnetic tape.

D = 9-track Magnetic Tape
E = RK05 Disk Cartridge
Q = RL01 Disk Cartridge
T = RK06 Disk Cartridge

Standard Options

For RT-11 Systems:
QJ647 -X— Single-use license, source license, sources, documentation, support services (media: D, E, Q, T)

For RSX-11M, RSX-11D, or IAS systems:
QJ747 -X— Single-use license, source license, sources, documentation, support services (media: D, E, Q, T)

Upgrade Options

The following option is available as an upgrade kit from RSX-11M Graphics Extensions, Version 2, for use on the same single CPU on which RSX-11M Graphics Extensions, Version 2, is licensed. The license previously granted for RSX-11M Graphics Extensions, Version 2, shall be extended to cover this upgrade.

This option is also available as an upgrade kit from FORTRAN/RT-11 Extensions for use on the same single CPU on which FORTRAN/RT-11 Extension is li-

censed. The license previously granted for FORTRAN/RT-11 Extensions shall be extended to cover this upgrade.

For RT-11 Systems:
QJ648 -X— Single-use license, source license, sources, documentation, support services (media: D, E, Q, T)

QJ648 -Y— Single-use license, source license, sources, documentation, no support services (media: D, E, Q, T)

For RSX-11M, RSX-11D, or IAS systems:
QJ748 -X— Single-use license, source license, sources, documentation, support services (media: D, E, Q, T)

QJ748 -Y— Single-use license, source license, sources, documentation, no support services (media: D, E, Q, T)

Update Options:

Users of FORTRAN Graphics Package, Version 1, whose specified Support Category warranty has expired may order under license the following software update at the then current charge for such update. The update is distributed in source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

For RT-11 Systems:
QJ647 -N— Sources update (media: D, E, Q, T)

For RSX-11M, RSX-11D, or IAS Systems:
QJ747 -N— Sources update (media: D, E, Q, T)

Users of FORTRAN Graphics Package, Version 1, whose specified Support Category warranty has not expired may order under license the following software update for the then current media charge. The update is distributed in source form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

For RT-11 Systems:
QJ647 -V— Sources update (media: D, E, Q, T)

For RSX-11M, RSX-11D, or IAS System:
QJ747 -V— Sources update (media: D, E, Q, T)

ADDITIONAL SERVICES:

None

ADDENDUM
SOFTWARE SUPPORT CATEGORIES

Each software product (hereinafter 'SOFTWARE') with a designated Support Category A or B in the applicable Software Product Description (SPD) existing at the time of order will be the current release at the time of delivery and will conform to the SPD. DIGITAL's sole obligation shall be to correct defects (nonconformance of the SOFTWARE to the SPD) as described below. Any SOFTWARE with a designated Support Category C will be furnished on an 'as is' basis.

For SOFTWARE with a designated Support Category A or B, DIGITAL will provide the services set forth below without additional charge.

CATEGORY A

1. Upon notification by customer to the nearest DIGITAL office that the computer system, including all required prerequisite hardware and software, is ready for the installation of the SOFTWARE, DIGITAL will install such SOFTWARE in any location within the contiguous forty-eight (48) United States, the District of Columbia, or a country in which DIGITAL or a subsidiary of DIGITAL has a software service facility. The notification must be received by DIGITAL and the system must be ready for installation within thirty (30) days after the delivery of the SOFTWARE to customer or DIGITAL will have no obligation to install. Installation will consist of: (1) verification that all components of the SOFTWARE have been received by customer, (2) loading the SOFTWARE, and (3) executing a DIGITAL sample procedure.
2. During the ninety (90) day period after installation, if the customer encounters a problem with the current unaltered release of the SOFTWARE which DIGITAL determines to be a defect in the SOFTWARE, DIGITAL will provide the following remedial service (on site where necessary): (1) if the SOFTWARE is inoperable, apply a temporary correction (TC) or make a reasonable attempt to develop an emergency by-pass, and (2) assist the customer to prepare a Software Performance Report (SPR) and submit it to DIGITAL.
3. During the one (1) year period following installation, if the customer encounters a problem with the SOFTWARE which his diagnosis indicates is caused by a SOFTWARE defect, the customer may submit an SPR to DIGITAL. DIGITAL will respond to problems reported in SPRs which are caused by defects in the current unaltered release of the SOFTWARE via the Maintenance Periodical for the SOFTWARE, which reports SPRs received, code corrections, temporary corrections, generally useful emergency by-passes and/or notice of the availability of corrected code. Software Updates, if any, released by DIGITAL during the one (1) year period, will be provided to the customer on DIGITAL's standard distribution media as specified in the applicable SPD. The customer will be charged only for the media on which such updates are provided, unless otherwise stated in the applicable SPD, at DIGITAL's then current media prices.

CATEGORY B

During the one (1) year period following delivery, the services provided to the customer will be the same as set forth in 3 above.

CATEGORY C

SOFTWARE is provided on an 'as is' basis. Any software services, if available, will be provided at the then current charges.

DIGITAL shall have the right to make additional charges for any additional effort required to provide services resulting from customer use of other than current unaltered release of the SOFTWARE operated in accordance with the SPD.

DECUS SPECIAL INTEREST GROUPS

A DECUS Special Interest Group (SIG) is an activity whereby members of the DIGITAL Equipment Computer Users Society who share common interests in a particular field, join together to promote the interchange of information. Specialization may be in application areas such as education or industry, specific software systems such as OS/8 and RSX-11, or a specific mainframe such as the DECsystem-10/20.

SIG members derive numerous benefits from communicating with others who share specialized interests and who may wish to share their experiences. SIG s sponsor business meetings, tutorials, and workshops at the various chapter symposia which fulfill the two-fold purpose of fostering communication among users and between users and DIGITAL. Channeled communication provides DIGITAL and the users with insight into the direction of future developments. SIG s provide direct feedback to DIGITAL's in-house activities and have thereby made substantial contributions to OS/8, RSX-11, RSTS and TOPS-10.

User submitted articles, minutes of local meetings, and letters comprise the major portion of the individual SIG newsletters. Suggestions, hints, bug fixes, program plans, or questions of a non-commercial nature are suitable material for SIG newsletters.

SIG members are encouraged to make presentations at the SIG sessions held during DECUS Symposia.

The semi-annual U.S. Symposia sessions are organized by special interest areas. Submissions received from the user community are reviewed by symposia committee members from the special interest groups for appropriate placement on the agenda.

Special Interest Group participation in the review of programs submitted to the DECUS Program Library provides an opportunity to improve the quality and utility of programs available to you and to fellow users.

DIGITAL standards are issued to DECUS members for review and on the theory and philosophy of the standards. DECUS is a voting member of ANSI X3. Users are encouraged to register their areas of expertise with DECUS and assist with reviewing standards. SIG s often play a role in this process.

Below is a list of U.S. based Special Interest Groups within DECUS.

If you would like information regarding membership in any of the Special Interest Groups, contact DECUS U.S. Chapter, 129 Parker Street, PK3-1/E55, Maynard, Massachusetts 01754 or one of the other DECUS Chapter offices in Kanata, Sidney or Geneva.

NETSIG—Networks Special Interest Group
RSTS SIG—RSTS and RSTS/E Special Interest Group
SIGIG—Special Interest Group on Interactive Graphics
ESIG—Engineering Applications Special Interest Group
SIG-18—18-Bit Users Special Interest Group
12-Bit SIG—12-Bit User Special Interest Group
RSX-11/IAS SIG
RT-11 SIG
EDUSIG—Educational Users Special Interest Group
DEBUG—Digital Equipment Business Users Group
MUSIG—Mumps Special Interest Group
PASCAL SIG
DBMS SIG
TECO SIG
LSI-11 SIG
FOCAL SIG
STANDARDS SIG

DIGITAL EQUIPMENT COMPUTER USERS SOCIETY

RT-11 SPECIAL INTEREST GROUP

A Special Interest Group has been formed to serve users of RT-11. The organization of the SIG consists of a SIG Chairman and working committees for standards, documentation, library submissions, newsletters, and help for new users. Submissions to the newsletter should be directed to:

John T. Rasted
JTR Associates
58 Rasted Lane
Meriden, CT 06450
(203) 634-1632

Other communications can be sent to:

Thomas J. Provost
P.O. Box 95
Middleton, MA 01949
(617) 774-2370
(617) 245-6600 (Boston tie line)

or

John T. Rasted
c/o DECUS
One Iron Way - MR2-3/E55
Marlboro, MA 01752

SIG's activities encompass the following:

1. Preparation of a SIG newsletter (user submissions are strongly encouraged).
2. Exchange of user-written programs. This exchange could include TASKS representing user-written extensions to RT-11 RT-11 (including, but not limited to device drivers) as well as utility and applications programs, etc.
3. Establishment of communications with the DECUS staff to obtain for SIG members early information on RT-11 related additions to the DECUS Library. These communications will also serve to provide prompt testing of such submissions.
4. Establishment of user input to appropriate groups within DEC, so that they will receive user feedback on any additions or needed changes to RT-11. Additionally, SIG members may receive early warning from DEC about RT-11 changes.
5. Establishment of SIG-maintained files of RT-11 errors and error solutions, where they exist, independent of DEC publications.
6. Establishment of RT-11 "Welcome Wagon" type services to aid new users.
7. Coordination of user input to standards and documentation work.

If you wish to become a member of the RT-11 SIG, please fill out the form below and return it to the DECUS Office. (Please type or print).

NAME _____ *DECUS MEMBERSHIP NO. _____

AFFILIATION _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

Are you registered with DEC as an RT-11 user? _____ Version Number _____

Fortran? _____ Basic? _____

**Please note one must be a member of DECUS prior to requesting RT-11 SIG involvement. For general membership information, contact the DECUS Office, One Iron Way - MR2-3/E55, Marlboro, MA 01752*

SOFTWARE PROBLEMS OR ENHANCEMENTS

Questions, problems, and enhancements to DIGITAL software should be reported on a Software Performance Report (SPR) form and mailed to the SPR Center at one of the following DIGITAL Offices: (SPR forms are available from the SPR Center).

AREAS COVERED	SPR CENTER
United States, remainder of Far East, Middle East, Africa Latin America	Administrative Services Group, SWS P.O.Box F Maynard MA 01754
Canada	Digital Equipment Canada P.O.Box 11500 Kanata Canada K2H 8K8 Ontario
United Kingdom	Digital Equipment Corp., LTD Fountain House Butts Centre RG1 7QN Reading England
Australia-Melbourne	Digital Equipment Aust. Pty., LTD 60 Park Street South Melbourne Victoria Australia 3205
Australia-Sydney	Digital Equipment Aust. Pty., LTD 123 125 Willoughby Road P.O.Box 491 Crows Nest NSW Australia 2065
Brazil	Digital Equipment Comercio Ind Rua Batatais 429 Esq AL Campin 01423 Jardim Paulista Sao Paulo 0100 Brazil
Caribbean	De Latin America P.O.Box 11038 Fernando Juncos Sta. Santurce PR 00910
France	Digital Equipment Corp., LTD. Centre Silic Cidex L225 18 Rue Saarinen 94533 Rungis France

AREAS COVERED	SPR CENTER
Italy	Digital Equipment SPA Viale Fulvio Testi 117 20092 Cinisillo Balsamo Italy
Japan	Digital Equipment Corp., INTL 3rd Floor Kowa Building 8-7 Sanban Cho Chiyoda Ku Tokyo 102 Japan
New Zealand	Digital Equipment Corp., LTD Challenge House 3 Wolfe Street P.O.Box 2471 Auckland New Zealand 10010
Belgium, Holland	Digital Equipment BV Kaap Horndreef 38 3563 AV Utrecht Netherlands
Denmark, Finland, Norway, Sweden	Digital Equipment Corp., AB Englundavaegen 73 TR 171 41 Solna Sweden
Switzerland, Spain, Greece, Romania, Portugal, Bulgaria Yugoslavia	Digital Equipment Corp., SA 20 Quai Ernest Ansermet Boite Postale 23 CH 1211 Geneva Switzerland
Austria, Poland Hungary, Rumania East Germany, West Germany, Russia, Czechslovakia	Digital Equipment Corp., GMBH Wallsteinplatz 2 8000 Munchen 40 Germany 8000
Israel	DECSYS Computers, LTD 7 Habakuk Street Il-Tel Aviv 63505 Israel

DIGITAL EQUIPMENT CORPORATION, Corporate Headquarters: Maynard, Massachusetts 01754, Telephone: (617)897-5111—SALES AND SERVICE OFFICES: UNITED STATES—ALABAMA, Huntsville • ARIZONA, Phoenix and Tucson • CALIFORNIA, El Segundo, Los Angeles, Oakland, Ridgecrest, San Diego, San Francisco (Mountain View), Santa Ana, Santa Clara, Stanford, Sunnyvale and Woodland Hills • COLORADO, Englewood • CONNECTICUT, Fairfield and Meriden • DISTRICT OF COLUMBIA, Washington (Lanham, MD) • FLORIDA, Ft. Lauderdale and Orlando • GEORGIA, Atlanta • HAWAII, Honolulu • ILLINOIS, Chicago (Rolling Meadows) • INDIANA, Indianapolis • IOWA, Bettendorf • KENTUCKY, Louisville • LOUISIANA, New Orleans (Metairie) • MARYLAND, Odenton • MASSACHUSETTS, Marlborough, Waltham and Westfield • MICHIGAN, Detroit (Farmington Hills) • MINNESOTA, Minneapolis • MISSOURI, Kansas City (Independence) and St. Louis • NEW HAMPSHIRE, Manchester • NEW JERSEY, Cherry Hill, Fairfield, Metuchen and Princeton • NEW MEXICO, Albuquerque • NEW YORK, Albany, Buffalo (Cheektowaga), Long Island (Huntington Station), Manhattan, Rochester and Syracuse • NORTH CAROLINA, Durham/Chapel Hill • OHIO, Cleveland (Euclid), Columbus and Dayton • OKLAHOMA, Tulsa • OREGON, Eugene and Portland • PENNSYLVANIA, Allentown, Philadelphia (Bluebell) and Pittsburgh • SOUTH CAROLINA, Columbia • TENNESSEE, Knoxville and Nashville • TEXAS, Austin, Dallas and Houston • UTAH, Salt Lake City • VIRGINIA, Richmond • WASHINGTON, Bellevue • WISCONSIN, Milwaukee (Brookfield) • INTERNATIONAL—ARGENTINA, Buenos Aires • AUSTRALIA, Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney • AUSTRIA, Vienna • BELGIUM, Brussels • BOLIVIA, La Paz • BRAZIL, Rio de Janeiro and Sao Paulo • CANADA, Calgary, Edmonton, Halifax, London, Montreal, Ottawa, Toronto, Vancouver and Winnipeg • CHILE, Santiago • DENMARK, Copenhagen • FINLAND, Helsinki • FRANCE, Lyon, Grenoble and Paris • GERMAN FEDERAL REPUBLIC, Cologne, Frankfurt, Hamburg, Hannover, Munich, Nuremburg, Stuttgart and West Berlin • HONG KONG • INDIA, Bombay • INDONESIA, Djakarta • IRELAND, Dublin • ITALY, Milan, Rome and Turin • IRAN, Tehran • JAPAN, Osaka and Tokyo • MALAYSIA, Kuala Lumpur • MEXICO, Mexico City • NETHERLANDS, Utrecht • NEW ZEALAND, Auckland and Christchurch • NORWAY, Oslo • PUERTO RICO, Santurce • SINGAPORE • SPAIN, Madrid • SWEDEN, Gothenburg and Stockholm • SWITZERLAND, Geneva and Zurich • UNITED KINGDOM, Birmingham, Bristol, Epsom, Edinburgh, Leeds, Leicester, London, Manchester and Reading • VENEZUELA, Caracas •