

Software Product Description

PRODUCT NAME: BASIC/RT-11 Extensions, Version 1, Lab and Graphics Extensions

SPD 12.6.0

DESCRIPTION:

BASIC is a high-level conversational programming language developed at Dartmouth College that uses simple English-like statements and familiar mathematical notations to perform an operation. BASIC/RT-11 is an exceptionally fast incremental compiler which gives access to the RT-11 file structure using the BASIC language. BASIC/RT-11 Extensions (the product includes BASIC/RT-11) provides:

- Extensive support for one Laboratory Peripheral System for the PDP-11 (LPS11) including the A/D's with programmable gain, DMA and dual sample and hold operations, real-time clock, Schmitt trigger, relay, digital I/O and display.
- Extensive support for one real-time analog subsystem for the PDP-11 (AR11) including the A/D's with unipolar and bipolar gain, real-time clock, external input and display control. The AR11 is a subset of the LPS11 system.
- Complete support of multiple (up to a maximum of 16) digital input/output subsystems for the PDP-11 (DR11-K).
- Extensive support for the electrostatic printer/plotter for the PDP-11 (LV11).
- Extensive support for the display processor in graphics systems (VT11).
- Complete support for the alphanumeric and graphic terminal (VT55) with the hard copy option.

Since BASIC is a higher-level language, even the novice programmer can solve complex data acquisition and processing problems with a minimum amount of effort.

BASIC/RT-11 Extensions also runs in a fully interactive "desk calculator" mode that can aid program development and perform one-time-only calculations in response to console commands without the need for a conventional stored program.

All commands in this software package are initiated by the BASIC "CALL" statement. The Laboratory Peripheral System (LPS11) and the Real Time Analog Subsystem (AR11) are fully supported by the system via modules supplied with the BASIC/RT-11 Extensions. The real-time extensions enable the user to sample and display, in real-time, a variety of data.

Sampling is controlled by crystal clocks and/or Schmitt Triggers (for LPS11 only) or External input (for AR11 only) in which the user may specify such parameters as sampling rate and response time. The LPS11/AR11 software contains 24 commands, divided into 5 categories according to function. Each category is supplied as a separate module allowing the user to include only the modules necessary for a given experiment. The five modules are:

Module 0: Interface to BASIC/RT-11 - always required

Module 1: Analog to Digital conversion

Module 2: Real-Time Clock

Module 3: Digital I/O

Module 4: Display

The electrostatic printer/plotter (LV11) software allows the user to plot graphic data and print 132 column lines. The software (which must be purchased separately) enables scaling, drawing of points, lines and shaded areas and printing of labels or text. A versatile copying feature allows programs to create hard copy duplication of the VT11 screen. A total of nine commands in the LV11 support software are provided through the following three modules:

RTDSK RT-11 disk interface

LVSUBS LV11 subroutine

PLOT GT40 hardcopy feature

The display processor support routines allow the user to fully use the hardware features of the display processor such as vectors, alphanumerics, points, multi-intensities, blinks, etc. Additional commands perform tasks such as creating and tagging subpictures (graphic subroutines) and displaying figures and arrays in one dimension and two dimensions. The graphic software provides dynamic interaction with the system via routines for light pen interaction, dynamic allocation/deallocation of display buffers and saving and restoring display images as files on the systems device. Through a total of 29 commands the software provides an uncomplicated, flexible and complete interface between the user and the BASIC/RT-11 system.

The alphanumeric and graphic display terminal (VT55) software permits the user to fully use the hardware features of the display terminals. Lines, graphs, cursors, histogramming, text and hard copy are enabled. This software enables the user to fully utilize the graphic and text capabilities of the console terminal through nine simple commands.

MINIMUM HARDWARE REQUIRED:

Any valid RT-11 operating system configuration with at least 16K words of memory

OPTIONAL HARDWARE SUPPORTED:

Any RT-11 supported peripheral
Additional memory to a system total of 28K words

KE11-A Extended Arithmetic Element

KE11-E Extended Instruction Set

KE11-F Floating Instruction Set

FP11 Floating Point Processor

VT11-A Graphics Display Processor

LPS11 Laboratory Peripheral System

AR11 Analog Real Time Subsystem

DR11-K Digital I/O System

VT55 Graphics Display Terminal

PREREQUISITE SOFTWARE:

RT-11 Operating System, Version 2B or later

OPTIONAL SOFTWARE SUPPORTED:

LV11 Plotting Package

TRAINING CREDITS:

None

SUPPORT CATEGORY:

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

UPDATE POLICY:

During the first year, Update Policy shall be in accordance with the Software Support Categories Addendum to this SPD. After the first year, updates, if any, will be made available according to then prevailing DIGITAL policies.

ORDERING INFORMATION:

This software is furnished under a license for use on a single CPU and can be copied and modified (with inclusion of DIGITAL's copyright notice) only for use on such CPU, except as may otherwise be provided in writing by DIGITAL.

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

The following key (C, D, E, N, R, Y) represents the distribution media for the product and must be specified at the end of the "Q" number, i.e., QJ830-AD = binaries on 9-track magnetic tape.

C = DEctape

D = 9-track Magnetic Tape

E = RK Disk (DECpack)

N = Cassette (TU60)

R = Microfiche

Y = Floppy Disk

Standard Options

QJ830 -A- Single-use license, binaries, documentation, support services (media: C, D, E, Y) includes BASIC/RT-11

Source/Listing Options

QJ830 -E- All sources (media: C, D, E, Y)

QJ830 -F- Listings (media: R)

Update Options

Users of BASIC/RT-11 whose license does not include free updates under warranty, whose warranty has expired, or whose Standard Binary Program Update Service has expired, may purchase the following. The update is distributed in source or binary form on the appropriate medium and includes no installation or other services unless specifically stated otherwise.

QJ830 -H- Binaries, documentation (media: C, D, E, N, Y)

QJ830 -N- Source update (media: C, D, E, Y)

ADDITIONAL SERVICES:

None

D12.6.0