

Poqet Plus Series Utilities

User's Guide

Revision 3.052-a
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This document describes the utilities that are provided as part of release 3.052 of the Plus Series System Software. Specifically, this document covers the following utilities:

- The Poqet RAM Disk Driver (RAMDISK), version 0.7
- The Poqet Plus Expanded Memory Manager (PQEMM) version 1.04
- The Poqet Flash Utility (FLASHUTY) version 1.05
- The Poqet System Setup Utility (PQSETUP) version 3.02

In usage syntax descriptions, optional arguments for the utilities are enclosed in brackets (“[” and “]”), and parameters for arguments are shown in *italics*. The commands themselves are in normal text.

Poqet RAM Disk Driver

The Poqet RAM Disk Driver (RAMDISK) allocates extended memory and creates a DOS “disk drive” that can be accessed as drive E:. RAMDISK is loaded as a device driver in CONFIG.SYS.

Usage DEVICE=[*path*]RAMDISK.SYS [*size*]

Parameters *path*: The DOS pathname that specifies RAMDISK.SYS is located. This is usually “D:\”.

size: The size, in kilobytes, of the RAM disk to create. This number must be a multiple of 32K. If omitted, RAMDISK will create a 32K RAM disk.

Notes The drive created by RAMDISK is non-volatile, in that it will survive a warm boot (Ctl-Alt-Del) as well as a hard reset.

The contents of the RAM disk will be lost if one of the two events occur:

- 1) The size of the RAM disk is changed, or
- 2) All power is lost in the system (both the main battery and the bridge battery discharge completely).

The maximum size of a RAM disk created with RAMDISK is 1344K.

RAMDISK must precede PQEMM in CONFIG.SYS. RAMDISK and PQEMM share memory, so any memory left over by RAMDISK is available to PQEMM.

Example To create a 320K RAM disk, accessible as drive E:, place the following command line in CONFIG.SYS:

```
DEVICE=D:\RAMDISK.SYS 320
```

Poqet Plus Expanded Memory Manager

The Poqet Plus Expanded Memory Manager (PQEMM) provides expanded memory support compatible with the Lotus/Intel/Microsoft (LIM) 4.0 Expanded Memory Specification, with some limitations. These limitations are explained fully in Chapter 2 of the *Poqet Plus Series Technical Reference*. PQEMM is loaded as a device driver in CONFIG.SYS.

Usage `DEVICE=[path]PQEMM.SYS [/n:size]`

Parameters *path*: The DOS pathname that specifies RAMDISK.SYS is located. This is usually "D:\".

size: The size, in kilobytes, of the amount of memory that PQEMM is to manage. This amount of expanded memory is automatically rounded up to the next 16K page. So, for instance, if you issue the command

```
DEVICE=D:\PQEMM.SYS /n:500
```

PQEMM will allocate and manage 512K of expanded memory.

If the size parameter is omitted, PQEMM will allocate all available RAM for expanded memory.

Notes The maximum amount of memory available to PQEMM is 1344 KB, minus any RAM used by RAMDISK.

PQEMM must be loaded after RAMDISK. RAMDISK and PQEMM share memory, so PQEMM can only manage memory left over by RAMDISK.

Example To create 1 MB (1024K) of expanded memory managed by PQEMM, place the following command line in CONFIG.SYS:

```
DEVICE=D:\PQEMM.SYS /n:1024
```

Poqet Flash Utility

The Poqet Flash Utility (FLASHUTY) can be used to read, write, and erase the Flash ROM which holds the Plus Series BIOS as well as the contents of drive D:. The Flash Utility can also be used to convert DOS file structures into image files that can be programmed onto the Flash disk (drive D:) inside the Plus Series products.

Because the Flash Utility can overwrite the BIOS of the Poqet Plus Series products, extreme care should be taken when using this utility. If used improperly, the Flash Utility will destroy the BIOS in the product. Because of this danger, this utility should not be generally distributed outside of Fujitsu Personal Systems and well-qualified VARs.

The general command line syntax for the Poqet Flash Utility is:

```
Display Flash ROM:  FLASHUTY /Dstart_addr[-end_addr]
Erase Flash ROM:   FLASHUTY /Estart_block[-end_block]
Write Flash ROM:   FLASHUTY /Wstart_block filename
```

Create File Image: `FLASHUTY /M[:size] pathname imagefile`

Reading Flash ROM

When used with the “/D” option, the Flash Utility will display the contents of the specified address range on the screen.

Usage `FLASHUTY /Dstart_addr[-end_addr]`

Parameters *start_addr*: The address at which the Flash Utility should start reading the Flash ROM.

end_addr: The address at which the Flash Utility should stop reading the Flash ROM.

Notes After displaying a block of Flash ROM, the Flash Utility will pause. Pressing the ESC key will exit the Flash Utility, while pressing any other key will display the next block of Flash ROM.

The internal Flash drive (drive D:) of the Plus Series product occupies addresses 00000h - DFFFFh.

The BIOS of the Plus Series product occupies addresses E0000h - FFFFFh

Example To display the contents of the internal Flash drive, issue the following command at the DOS prompt:

```
FLASHUTY /d00000
```

Erasing Flash ROM

When used with the “/E” option, the Flash Utility will erase a section of the Flash ROM.

Usage `FLASHUTY /Estart_block[-end_block]`

Parameters *start_block*: The block address at which the Flash Utility should start erasing the Flash ROM.

end_block: The block address at which the Flash Utility should stop erasing the Flash ROM.

Notes A block address is a single digit that specifies a 64 KB block of Flash ROM to operate on. Specifying block 0 will erase bytes 00000h - 0FFFFh, specifying block 1 will erase bytes 10000h - 1FFFFh, and so on, up to block F, which will erase bytes F0000h - FFFFFh.

The BIOS occupies blocks E and F. The internal Flash drive (D:) occupies blocks 0 - D.

When erasing the Flash ROM, power management must be disabled, and external power must be applied to the unit.

Example To erase the contents of the internal Flash drive, issue the following command from the DOS prompt:

```
FLASHUTY /e0-D
```

Programming Flash ROM

When used with the “/W” option, the Flash Utility will read a binary file and program the contents of that file into the Flash ROM. Use the “/W” parameter to update the BIOS of a Poqet Plus Series product, or to create or change the contents of the internal Flash drive (drive D:).

Usage FLASHUTY /W*start_block filename*

Parameters *start_block*: The block address at which the Flash Utility should start writing the Flash ROM.

filename: The name of the image file with which to program the Flash ROM.

Notes A block address is a single digit that specifies a 64 KB block of Flash ROM to operate on. Specifying block 0 will program bytes 00000h - 0FFFFh, specifying block 1 will program bytes 10000h - 1FFFFh, and so on, up to block F, which will program bytes F0000h - FFFFFh.

The BIOS is located in blocks E and F. The internal Flash drive (D:) is located in blocks 0 - D.

When writing the Flash ROM, power management must be disabled, and external power must be applied to the unit.

The Flash ROM does not have to be erased before being programmed with the “/W” option.

For detailed instructions on programming the internal Flash drive and the BIOS of the Plus Series products, see below.

Example To write data from a file named BIOS.BIN into blocks E and F, which contain the Plus Series BIOS, issue the following command from the DOS prompt:

```
FLASHUTY /we bios.bin
```

After executing this command, you should perform a master reset of the Plus Series product by pushing the Reset key while holding down the On/Off key (the green ON key on the Poqet PC Plus, or the green key on the Poqet Pad Plus).

Creating Disk Images

When used with the “/M” option, the Flash Utility will create an image of all of the files contained in a directory and its subdirectories. This image file can then be used with the Flash Utility “/W” parameter to program the Plus Series Flash drive (drive D:).

Usage FLASHUTY /M[:*size*] *pathname imagefile*

Parameters

size: The size, in kilobytes, of the disk image to create. Valid parameters are 512, 576, 640, 704, 768, 832, and 896. If omitted, the size will default to 512 KB.

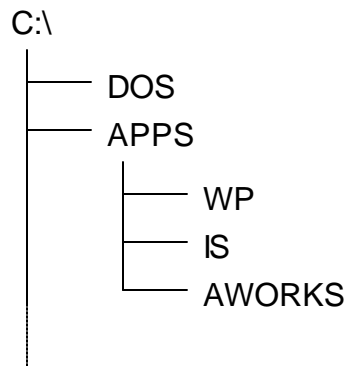
pathname: The top directory of the directory structure which is to be assembled into a disk image.

imagefile: The file into which the disk image is to be placed.

Notes When creating disk images, the Flash Utility can be run on any standard MS-DOS computer.

This is the first step in creating the internal Flash drive on the Poqet Plus Series products. For detailed instructions on this procedure, see below.

Example Assume we have the following directory structure:



To create a 640 KB image of the directory structure starting with the APPS subdirectory, and then place that image in A:\DRIVE.IMG, issue the following command from the DOS prompt:

```
FLASHUTY /m:640 c:\apps a:\drive.img
```

This command will create the image file DRIVE.IMG and place the APPS, WP, IS, and AWORKS directories and their files in the image file. When the image file is programmed into the Flash (using the “/W” option), drive D: will have the same directory structure as the APPS subdirectory -- the root directory of drive D: will have three subdirectories: WP, IS, and AWORKS.

Programming the Flash Drive of a Plus Series Product

As an example, assume that the files contained in “C:\APPS” and its subdirectories are to be programmed into the Flash drive (drive D:) of a PoqetPad, and that those files occupy 754,234 bytes of disk space. To program the Flash drive of a Plus Series product, perform the following steps.

- 1) Determine the amount of space required to hold all of the files that need to be placed on the Flash drive, and then decide which parameter to use with the “/M” option of the Flash Utility.

EXAMPLE: Our files occupy 754,234 bytes, so the parameter to the “/M” option would be 768.

- 2) Make an image of the directory structure by using the “FLASHUTY /M” command. This step will be done on a desktop computer, with the image file being transferred to the PoqetPad Plus or Poqet PC Plus via a PCMCIA card inserted in a ThinCardDRIVE.

EXAMPLE: Assuming that the ThinCardDRIVE is drive D: on our desktop computer, we issue the command:

```
FLASHUTY /m:768 c:\apps d:\disk.img
```

- 3) Transfer the image file to a Poqet Plus Series product.
- 4) Disable power management on the Poqet Plus Series product and supply external power to it.
- 5) Use the Flash Utility to program the image onto the Flash drive of the Plus Series product.

EXAMPLE: Assuming that the image files is on a RAM card in drive A: of the Poqet Plus Series product, we issue the command

```
FLASHUTY /w0 a:\disk.img
```

Updating the BIOS on a Plus Series Product

To update the BIOS on a Plus Series Product, perform the following steps. Exercise extreme caution when performing this procedure. If a mistake is made, the BIOS may be erased, rendering the computer unusable.

- 1) Obtain a file containing the version of the BIOS that you want to program into the Plus Series product.
- 2) Disable power management on the Poqet Plus Series product and supply external power to it.
- 3) Use the Flash Utility to program the BIOS into the Plus Series product with the following command (assuming that the BIOS is in a file named BIOS.BIN in drive A:):

```
FLASHUTY /wE a:\bios.bin
```

- 4) Reset the computer to factory defaults by pressing the Reset key while holding the On/Off key (the green button on a PoqetPad Plus, or the green ON key on a Poqet PC Plus). Continue to press the On/Off key until the BIOS banner is displayed on the screen.

WARNING: To avoid disastrous consequences, make sure that the first parameter to the Flash Utility command is “/wE”. Also make sure that the file specified in the Flash Utility command has a valid BIOS image in it. Failure to do either one of these could result in the destruction of the computer’s BIOS.

Poqet System Setup Utility

The Poqet System Setup Utility (PQSETUP) will change various system parameters, including power management settings and serial port configurations. The command line syntax of PQSETUP is:

```
PQSETUP  [/?] [/F] [/K=country] [/V=video] [/P=power_mode] [/O=off_timer] [/B=x;y;z]
          [/A=x;y;z] [/C=x;y;z] [/M=backlight_mode] [/L=backlight_timer] [/R=port_config]
          [/S=cpu_speed] [/X=access_code] [/E=serial_mode]
```

These options are described in detail below.

/? or "no options"	If no option is specified or the “/?” option is used, PQSETUP will display a brief description of all the commands and options that can be specified for PQSETUP.
/F	The “/F” option will reset the system settings to the factory defaults.
/K= <i>country</i>	<p>The “/K” option sets the default system country code to <i>country</i>. See the <i>Plus Series Technical Reference Guide</i> for a list of valid country codes.</p> <p>Default: <i>country</i> = 00 (USA)</p> <p>Example: “PQSETUP /K=01” sets the country code to the United Kingdom.</p>
/V= <i>video</i>	<p>The “/V” option sets the default video adapter to either CGA or MDA. If <i>video</i> is “C” then the default video adapter will be the CGA-compatible adapter. If <i>video</i> is “M” then the MDA-compatible adapter will be used.</p> <p>Default: <i>video</i> = C (CGA mode)</p> <p>Example: “PQSETUP /V=M” sets the default video adapter to MDA-compatible.</p>
/P= <i>power_mode</i>	<p>The “/P” option sets the default power management (PM) mode to that specified by <i>power_mode</i>. Common values for <i>power_mode</i> are “00” (PM off), “02” (PM on), and “82” (communications mode). See the <i>Plus Series Technical Reference Guide</i> for a complete list of valid power management modes.</p> <p>Default: <i>power_mode</i> = 02 (PM on)</p> <p>Example: “PQSETUP /P=00” turns power management off.</p>
/O= <i>off_timer</i>	<p>The “/O” option sets the power down timer to the value specified by <i>off_timer</i>. <i>Off_timer</i> specifies the number of “power management ticks” that must elapse before the system will auto-suspend when the system is idle and power management is active. A power management tick is 27.5 msec. The value of <i>off_timer</i> is hexadecimal, and can range from 0000 to FFFF.</p> <p>Default: <i>off_timer</i> = 2228 (4 minutes)</p> <p>Example: “PQSETUP /O=088A” will set the auto-suspend timer to 1 minute.</p>

/B= x;y;z	<p>The “/B” option sets the search order for a DOS boot drive. The values <i>x</i>, <i>y</i>, and <i>z</i> can be any of the Plus Series drive letters: “A”, “B”, “C”, or “D”.</p> <p>Default: C;C;C (the system will always boot from drive C:)</p> <p>Example: “PQSETUP /B=A ; B ; C” will set the system to boot from drive A:. If there is no card in drive A:, then the system will boot from drive B:. If there is no card in drive B:, then the system will boot from drive C:.</p>
/A=x;y;z	<p>The “/A” option sets the search order for AUTOEXEC.BAT. The values <i>x</i>, <i>y</i>, and <i>z</i> can be any of the Plus Series drive letters: “A”, “B”, “C”, or “D”.</p> <p>Default: A;D;C (the system will search for AUTOEXEC.BAT first on drive A:, then on drive D:, then on drive C:)</p> <p>Example: “PQSETUP /A=A ; B ; C” will set the system to search for AUTOEXEC.BAT on drive A:. If there is no AUTOEXEC.BAT on drive A:, then the system will look on drive B:. If it is not found on drive B:, then the system will look on drive C:.</p>
/C=x;y;z	<p>The “/C” option sets the search order for CONFIG.SYS. The values <i>x</i>, <i>y</i>, and <i>z</i> can be any of the Plus Series drive letters: “A”, “B”, “C”, or “D”.</p> <p>Default: A;D;C (the system will search for CONFIG.SYS first on drive A:, then on drive D:, then on drive C:)</p> <p>Example: “PQSETUP /C=A ; B ; C” will set the system to search for CONFIG.SYS on drive A:. If there is no CONFIG.SYS on drive A:, then the system will look on drive B:. If it is not found on drive B:, then the system will look on drive C:.</p>
/M=<i>backlight_mode</i>	<p>The “/M” option turns the backlight either on or off, and will change the default backlight setting when the system boots or is resumed from standby mode (with the green On/Off button). If <i>backlight_mode</i> is “00”, then the backlight will turn off and will be off when the system is resumed. If <i>backlight_mode</i> is “01”, then the backlight will be turned on, and it will be on when the system is resumed.</p> <p>Default: <i>backlight_mode</i> = 00 (backlight off)</p> <p>Example: “PQSETUP /M=01” will turn the backlight on, and set the system default so that the backlight will be on whenever the system boots up or is resumed.</p>
/L=<i>backlight_timer</i>	<p>The “/L” option sets the backlight-off timer to the value specified by <i>backlight_timer</i>. <i>Backlight_timer</i> specifies the number of “power management ticks” that must elapse before the backlight will be shut off (if it is on) when the system is idle and power management is active. One power management tick is 27.5 msec. The value of <i>backlight_timer</i> is hexadecimal, and can range from 0000 to FFFF.</p>

Default: *backlight_timer* = 2228 (4 minutes)

Example: "PQSETUP /L=088A" will set the backlight-off timer to 1 minute.

/R=port_config

The "/R" option configures the serial port hardware in a Plus Series product. The parameter *port_config* specifies the actual configuration of the serial port hardware. *Port_config* consists of two letters and two numbers, in the format "xynm", where:

a) *x* specifies where device #1 will be directed, and *y* specifies where device #2 will be directed. *x* can be one of:

D: device 1 is disabled

I: device 1 directed to infrared serial port (PoqetPad Plus only)

R: device 1 directed to RS-232 port

T: device 1 directed to TTL serial port

y can be one of:

D: device 2 is disabled

I: device 2 directed to infrared serial port (PoqetPad Plus only)

B: device 2 directed to barcode reader port

T: device 2 directed to TTL serial port

Valid combinations of *x* and *y* are "DD", "DI", "DB", "RD", "TD", "RI", "TB", "IB", and "RT".

A dash ("-") preceding either device identifier indicates that the corresponding device will have its polarity inverted. This option is only valid with the barcode reader (B), infrared (I), and TTL (T) devices only.

b) *n* specifies which communications port (COM1: or COM2) will be used for the first enabled device. "1" specifies COM1: and "2" specifies COM2:. The second enabled device will use the other communications port.

c) *m* specifies which hardware interrupt, or IRQ, will be used by the comm port specified by the *n* parameter. The valid options are "3" (specifying IRQ3) and "4" (specifying IRQ4). The IBM-PC/XT standard specifies that COM1: should use IRQ4 and COM2: should use IRQ3.

If both serial ports are to be disabled, the *m* and *n* parameters do not need to be specified, so you can simply issue the command "PQSETUP /R=DD".

Default: *port_config* = RD14 (COM1: is a standard RS-232 serial port using IRQ4, and COM2: is disabled)

Examples: If you want to connect an inverted polarity barcode reader on COM1:, you would issue the command

```
PQSETUP /R=D-B14
```

Note that the IRQ number must be specified, even though it conforms to the IBM-PC standard. Note also that even though the "B" specifying the barcode reader is the second device specified, it is put on COM1: because the "1" that specifies COM1: refers to the first **enabled** device, which happens to be the barcode reader.

To put an inverted polarity barcode reader on COM1:, and the infrared port on COM2:, the command would be

```
PQSETUP /R=I-B23
```

/S=*cpu_speed*

The “/S” option specifies the maximum clock frequency at which power management will allow the system to run. The parameter *cpu_speed* specifies the frequency as follows:

<i>cpu_speed</i>	maximum clock frequency
0	2 Mhz
1	4 Mhz
2	8 Mhz
3	16 Mhz

Default: *cpu_speed* = 3 (maximum clock frequency is 16 Mhz)

Example: “PQSETUP /S=2” sets the max. clock speed to 8 MHz.

/X=*access_code*

The “/X” option enables or disables access to the pop-up configuration utility through the on-screen button on the PoqetPad Plus or the hotkey sequence (Fn+ESC) on the Poqet PC Plus (or a Poqet Pad Plus with a keyboard). The “/X” option also controls whether the user has the ability to modify the power management settings through the use of the on-screen button on the PoqetPad Plus or the hotkey sequence (Fn+F2) on the Poqet PC Plus or the PoqetPad Plus with a keyboard.

The parameter *access_code* specifies which kinds of access are to be allowed or disallowed. *Access_code* consists of two letters the format “xy” where:

- a) *x* specifies whether you want to enable or disable the option; *x* can be one of:
 - E: enable option
 - D: disable option
- b) *y* specifies the option you want to affect; *y* can be one of:
 - P: enable/disable the ability to modify power management settings
 - S: enable/disable the ability to invoke pop-up configuration utility
 - B: enable/disable the ability to modify power management settings and to

invoke the pop-up configuration utility

Default: *access_code* = EB (power management can be changed, and the pop-up configurator can be accessed)

Example: “PQSETUP /X=DP” will keep the user from modifying the power management settings.

/E=serial_mode

The “E” option controls the status of the incoming modem control signals when one of the communications ports is configured for the barcode reader port or the infrared port.

The parameter *serial_mode* specifies the polarity of the modem control signals Carrier Detect (CD), Clear To Send (CTS), and Data Set Ready (DSR). If *serial_mode* is “00” then the modem control signals will be inactive. If *serial_mode* is “01” then the modem control signals will be active.

Default: *serial_mode* = 00 (the modem control signals are inactive)

Example: “PQSETUP /E=01” will set the CD, CTS, and DSR signals to their active state when the barcode reader port or infrared port is in use.

This option is effective only on certain hardware revisions of the Plus Series Products.