

CHAPTER 6 MEMORY CONTENTS

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CHAPTER 6 MEMORY

6.1 Memory Map

6.1.1 General

The PINE has 64K bytes of RAM, 32K bytes of OS ROM and two 32K-byte ROM capsules. Each memory can be accessed through bank switching.

The area located at 0E000H to 0FFFFH (8K bytes) is not affected by bank switching. This area plays an important role in system operations.

See Section 4.4, "Bank Switching" for detailed information concerning bank switching and memory configuration.

6.1.2 RAM Memory Map

Figure 6.1.1 shows the PINE RAM (bank 0) memory map.

System areas RSYSAR1 to RSYSAR5 are detailed in Section 6.2.

0000H	CP/M system area
0100H	
	CCP
	RBDOS 1
	RBIOS 1
	Internal RAM disk
	User BIOS area
CC00H	Item key buffer
D000H	Virtual screen
D800H	VRAM 2
E000H	VRAM 1
E800H	System screen
E940H	User-defined character area
EA00H	RBDOS 2
EB00H	RBIOS 2
	RSYSR
EF20H	RSYSAR 1
EFD0H	RSYSAR 2
F310H	RSYSAR 3
F368H	RSYSAR 4
F860H	RSYSAR 5
FF90H	Resident jump table
FFC0H	Hooks
FFF0H	Interrupt vector
FFFFH	

The size of these areas is variable
(maximum combined value = 35.5KB).

Figure 6.1.1 RAM Memory Map

CP/M System Area (at 0000H) 100H bytes

- Loaded with jump addresses to BDOS and BIOS functions, or the I/O byte.

CCP (variable address) 800H bytes

- Loaded with a CCP program for processing by CCP.
- Supports built-in commands such as ERA, DIR and REN.
- The starting address of this area is affected by the RAM disk and user BIOS area size.

RBDOS1 (variable address) 100H bytes

- Loaded with the BDOS entry addresses for load-and-go programs.
- When calling any BDOS function in load-and-go programs, call address 0005H just as in standard CP/M application programs.
- See Section 3.2, "BDOS Operations."

RBIOS1 (variable address) 100H bytes

- Loaded with the BIOS entry addresses for load-and-go programs.
- When calling any BIOS function in load-and-go programs, call the BIOS address computed from the WBOOT entry address located at 0001H to 0002H just as in standard CP/M application programs.
- See Section 3.3, "BIOS Operations."

Internal RAM Disk (variable address) Variable length

- This area can be used as if it were on disk.
- The internal RAM disk size is specified in 1K-byte units. The total combined size of the user BIOS area and this area can be set at up to 35.5 KB.
- When the external RAM disk is connected, the size of the internal RAM disk is automatically set to 0 KB.

User BIOS Area (variable address) Variable length

- Used by the user to store a program or data in RAM.
- The user BIOS area is specified in 256 byte units. The total combined size of the internal RAM disk and this area can be set at up to 35.5 KB.
- See 4.1, "User BIOS."

Item Key Buffer (at 0CC00H) 400H bytes

- Stores the table for item function keys.
- This table is used to redefine item function keys when the item keyboard is installed. Key strings can be specified as up to 15 characters in length.
- See 3.5.4, "Item Keyboard."

Virtual Screen (at 0D000H) 800H bytes

- Stores character data for the virtual screen (user screen).
- The virtual screen size can be specified as up to 25 lines x 80 characters.
- See 3.6.2, "Screen Modes."

VRAM2 (at 0D800H) 800H bytes

- VRAM area used for the system screen.
- See 3.6.2, "Screen Modes."

VRAM1 (at 0E000H) 800H bytes

- VRAM area used for the virtual screen (user screen).
- See 3.6.2, "Screen Modes."

System Screen (at 0E800H) 140H bytes

- Stores character data for the system screen.
- The system screen size is fixed at 8 lines x 40 characters.
- See 3.6.2, "Screen Modes."

User-defined Character Area (at 0E940H) C0H bytes

- Stores user-defined characters.
- One character (6 x 8-dot font) is made up of 6 bytes. The user can define up to 32 character fonts in E0H through FFH.
- See 3.6.6, "Character Generator."

RBDOS2 (at 0EA00H) 100H bytes

- Loaded with the BDOS entry addresses for ROM-based programs.
- When calling any BDOS function in ROM-based programs, call 'JP RBDOS' (0FF90H).
- See Section 3.2, "BDOS Operations."

RBIOS2 (at 0EB00H), RSYSPR (at 0EB00H) 520H bytes

RBIOS2

- Loaded with the BIOS entry addresses for ROM-based programs.
- When calling BIOS functions in ROM-based programs, use these fixed BIOS entry addresses.
- See Section 3.3, "BIOS Operations."

RSYSPR

- Stores system resident programs such as bank switching and interrupt processing.

RSYSAR1 (at 0EF20H) B0H bytes

- A work area used by the system.
- This area is initialized at system initialize time.
- See 6.2.2, "System Area I (RSYSAR1)."

RSYSAR2 (at 0EFD0H) 340H bytes

- A work area used by the system.
- This area is initialized at system initialize or reset time.
- See 6.2.3, "System Area II (RSYSAR2)."

RSYSAR3 (at 0F310H) 58H bytes

- A work area used by the system.
- This area is initialized at system initialize, reset, or WBOOT time.
- See 6.2.4, "System Area III (RSYSAR3)."

RSYSAR4 (at 0F368H) 4F8H bytes

- A work area used by the system.
- Loaded with parameters that need not be initialized.
- See 6.2.5, "System Area IV (RSYSAR4)."

RSYSAR5 (at 0F860H) 738H bytes

- A work area used by the system.
- This area is used as a buffer or stack area.
- See 6.2.6, "System Area V (RSYSAR5)."

Resident Jump Table (at 0FF90H) 30H bytes

- Loaded with the jump table to OS ROM programs to make system utilities accessible to the user.
- See 4.2, "Jump Tables."

Hook (at 0FFC0H) 30H bytes

- Loaded with the hook jump table for extended OS interrupt and BIOS processing.
- See 4.3, "Hooks."

Interrupt Vector (at 0FFF0H) 10H bytes

- Loaded with an interrupt vector for five levels of interrupts.
- See 4.7, "Interrupts."

6.2 System Area Details

6.2.1 General

This subsection describes individual system areas used by the PINE OS.

The system areas are described in terms of the following items:

Address:

Indicates the address of each parameter. If a parameter is spread over two or more bytes, its starting address is indicated. For a stack area, its ending address is indicated according to the characteristics of the area.

Variable name:

Indicates each parameter name used by the system. Specifying two or more names for this item indicates that the same area is concurrently used by two or more programs which have different names.

Number of bytes:

Indicates the size of the specified area in bytes. The size is represented in hexadecimal units.

Type:

Indicates the characteristics of the specified area.

- o ----- The user can modify system operation by rewriting the area.
- # ----- Variable area. The value of this area is changed when the status is changed. The user can use this area to check the system status.
- x ----- Work area. This area is used as a work area when the system is in operation.

Initial Value:

Indicates the initial default value of the specified area.

Description:

An explanation of the specified area and the purpose for which it is used.

Reference:

Indicates the section in which the specified area is described in detail. A section number enclosed in parentheses indicates that the section has no description of the area, but is related to the area.

6.2.2 System Area I (RSYSAR1)

This area is initialized only at system initialize time.

RETADD (at 0EF1FH) 01H byte Type: x

- The initial value is 0C9H.
- Indicates the address of the called hook. The address contains the RET instruction.
- The hook call address points to RETADD after the hook routine is completed.
- See 4.3, "Hooks."

RBITOP (at 0EF20H) 02H bytes

CCPLAD (at 0EF22H) 02H bytes Type: #

- The initial value is 5A00H.
- Loaded with the CCP load starting address used when relocating the CCP program into RAM.
- This value is affected by the size of the internal RAM disk and user BIOS area.
- The initial value is specified in relation to an internal RAM disk size of 26 KB and a user BIOS area size of 0 KB.

BDSLAD (at 0EF24H) 02H bytes Type: #

- The initial value is 6200H.
- Loaded with the load starting address used when loading the BDOS program using RBDOS1 into RAM.
- This value is affected by the internal RAM disk and user BIOS area sizes. The value must satisfy the following formula:
$$(BDSLAD) = (CCPLAD) + 0800H$$
- The initial value is specified in relation to an internal RAM disk size of 26 KB and a user BIOS area size of 0 KB.
- See 3.2, "BDOS Operations."

BILLAD (at 0EF26H) 02H bytes Type: #

- The initial value is 6300H.
- Indicates the starting address in RAM of the BIOS entry points to RBIOS1.
- This value is affected by the size of the internal RAM disk and user BIOS area. This value must satisfy the following formula:
$$(BILLAD) = (BDSLAD) + 100H$$
- The initial value is specified in relation to an internal RAM disk size of 26 KB and a user BIOS area size of 0 KB.
- See 3.3, "BIOS Operations."

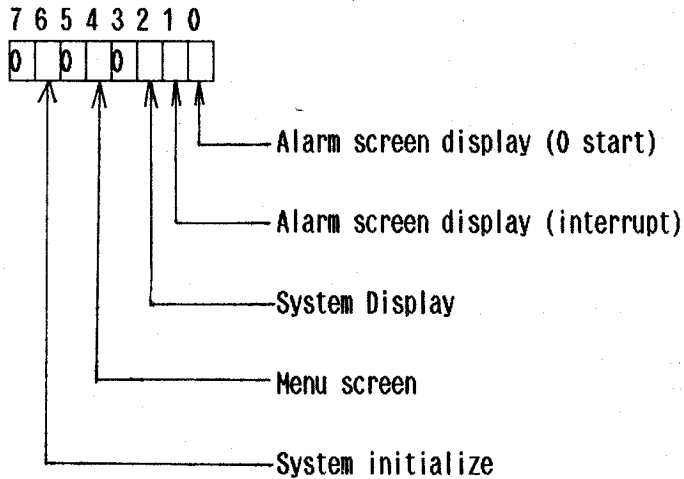
RESEXQ (at 0EF28H) 01H byte Type: o

- The initial value is 00H.
- This is the flag used to specify resident processing.
$$\text{RESEXQ} = 00H \quad : \quad \text{Non-Resident}$$

$$= \text{other than } 00H : \text{Resident}$$
- This flag is set and reset using BIOS RESIDENT.
- See 4.5, "Resident Processing."

MODEFG (at 0EF29H) 01H byte Type: x

- The initial value is 00H.
- This flag indicates the status of the currently executing processing.

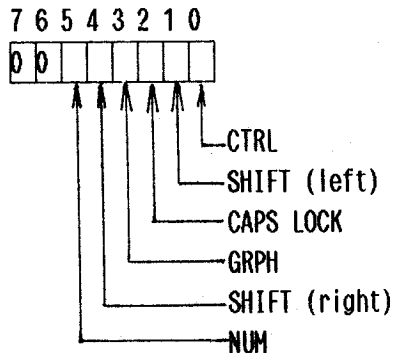


- See 8.1, "State Transition."

CNTNKEY (at 0EF2AH) 01H byte Type: o

- The initial value is 01H.

- Indicates the shift key state when turning power off in the continue mode.



(Each bit is set to 1 if the corresponding key is pressed down at power off time.)

- When the item keyboard is installed, only Bit 0 (CTRL) can be specified.

- When CNTNKEY is set to 00H, regardless of the shift key state, the power is always turned off in the continue mode.

- When the initial value is still set, the power can be turned off in the continue mode by setting the power switch to OFF while holding down the CTRL key.

EXRAMACFLG (at 0EF2BH) 01H byte Type: x

- The initial value is 00H.

- Indicates whether or not the external RAM disk is accessed.

EXRAMACFLG = 00H : Not accessed.
= Other than 00H: Accessed.

- This area is used by the system to determine whether or not the 'RAM DISK FORMAT (Y/N)' prompt should be displayed when the RESET key is pressed during an access to the external RAM disk.

SIZRAM (at 0EF2CH) 01H byte Type: #

- The initial value is 1BH.
- Indicates the internal RAM disk capacity in 1K byte units.
- Application programs can modify the internal RAM disk size by changing the value of SIZRAM and then calling any system utility program according to the specified procedure.
- The procedure is the same as for USERBIOS.

USERBIOS (at 0EF2DH) 01H byte Type: #

- The initial value is 00H.
- Indicates the user BIOS area size in 256K byte units.
- Application programs can modify the user BIOS area size by changing the value of USERBIOS and then calling any system utility program according to the specified procedure.
- The procedure is described in Section 4.1, "User BIOS."
- See 4.1, "User BIOS."

RSXON (at 0EF2EH) 01H byte Type: o

- The initial value is 11H.
- Loaded with an XON code when XON/XOFF is specified by BIOS RSIOX.
- See (23) RSIOX in 3.4.2.

RSXOFF (at 0EF2FH) 01H byte Type: o

- The initial value is 13H.
- Loaded with the XOFF code when XON/XOFF is specified by BIOS RSIOX.
- See (23) RSIOX in 3.4.2.

DUPLEX (at 0EF30H) 00H byte

SRSADR (at 0EF31H)

- Used by the system to specify the RSIOX open parameters for data input/output through the RS-232C interface with BIOS PUNCH, READER, or CONIN.
- See (7) PUNCH in 3.4.2.

02H bytes Type : o

- The initial value is 0FC9BH.
- Indicates the starting address of the receive buffer.
- The initial value points to the beginning of COMBUF.

02H bytes Type : o

- The initial value is 00F0H.
- Indicates the starting address of the receive buffer.

01H byte Type : o

- The initial value is 0DH.
- Specifies the transmission speed when sending or receiving data.

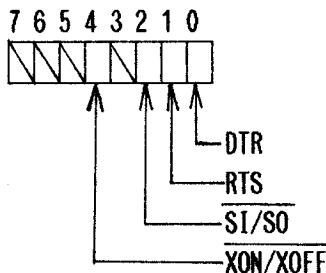
Value	Speed (BPS)	Value	Speed (BPS)
02H	110	0DH	4800
04H	150	0EH	9600
05H	200	0FH	19200
06H	300	10H	38400
08H	600	80H	75/1200
0AH	1200	81H	1200/75
0CH	2400		

01H byte Type : o
 - The initial value is 03H.
 - Specifies the bit length.
 = 02H: 7 bits/character
 = 03H: 8 bits/character

01H byte Type : o
 - The initial value is 00H.
 - Specifies the type of parity checking.
 = 00H: No parity
 = 01H: Odd parity
 = 03H: Even parity

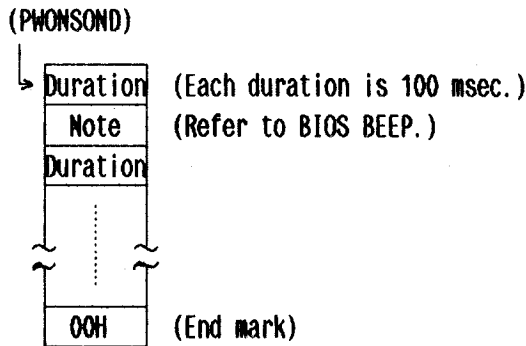
01H byte Type : o
 - The initial value is 03H.
 - Specifies the number of stop bits.
 = 01H: 1 bit
 = 03H: 2 bits

01H byte Type : o
 - The initial value is 0FFH.
 - Specifies how to control sending and receiving.



(DTR and RTS are active when the corresponding bits are set to 1, and $\overline{SI/SO}$ and $\overline{XON/XOFF}$ controls are specified when set to 0.)

PWONSOND (at 0EF3AH) 02H bytes Type: o
 - Indicates the starting address of the musical note table when the power is turned on in the restart mode.



- The initial value of PWONSOND points to the note table address in OS ROM, in which sound data 01H, 37H and 00H are stored.
- When rewriting the contents of the note table in application programs, set PWONSOND to point to address 8000H or higher.
- See 2.4, "Power-on."

CNTNSOND (at 0EF3CH) 02H bytes Type: o

- Indicates the starting address of the note table when power is turned on in the continue mode.
- The format of the table is described in PWONSOND (0EF3AH).
- The initial value of CNTNSOND indicates the note table address in OS ROM, in which sound data 01H, 37H and 00H are stored.
- When rewriting the contents of the note table in application programs, set CNTNSOND to point to address 8000H or higher.
- See 2.4, "Power-on."

ALRMSOND (at 0EF3EH) 02H bytes Type: o

- Indicates the starting address of the note table when the alarm/wake screen is displayed.
- The format of the table is described in PWONSOND (0EF3AH).
- The initial value of ALRMSOND indicates the note table address in OS ROM, in which sound data 01H, 25H, 01H, 29H and 00H are stored three times in succession.
- When rewriting the contents of the note table in application programs, set ALRMSOND to point to address 8000H or higher.
- See 2.9, "Alarm/Wake Function."

ATSHUTOFF (at 0EF40H) 01H byte Type: o

- The initial value is 05H.
- Specifies, in minutes, the time until power is automatically turned off when the system is waiting for entry from the keyboard (BIOS CONIN).
- ATSHUTOFF = 00H indicates that the auto power off function is disabled.
- This area is used by the system only to identify whether the auto power off function is disabled or enabled. The actual time until the auto power off is specified by ATSOTIME (0EF41H).
- See 2.8, "Auto Power-off."

ATSOTIME (at 0EF41H) 02H bytes Type: o

- The initial value is 012CH.
- Specifies, in seconds, the time until power is automatically turned off when the system has been waiting for entry from the keyboard (BIOS CONIN).
- The value of ATSOTIME must satisfy the following formula:
$$\text{ATSOTIME} = \text{ATSHUTOFF} \times 60$$
- The system measures the time specified in ATSOTIME using the 1-second interrupt.
- See 2.8, "Auto Power-off."

ALRMSTDS (at 0EF43H) 01H byte Type: o

- The initial value is 00H.
- ALRMSTDS is the flag used to disable the setting of alarm/wake times during system display processing.
 - = 00H : Setting of alarm/wake times is enabled.
 - = Other than 00H: Setting of alarm/wake times is disabled.
- See 2.11, "System Display."

MENUFG (at 0EF44H) 01H byte Type: o

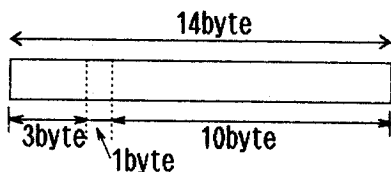
- The initial value is 00H.
- This is the flag used to specify whether or not the menu screen is to be displayed.
 - = 00H : Menu screen is to be displayed.
 - = Other than 00H: No menu screen is to be displayed.
- See 2.10, "Menu Function."

MENUDRV (at 0EF45H) 0BH bytes Type: o

- Specifies the drive for which the menu screen is displayed.
- MENUDRV is specified within the range of 'A' to 'K' in ASCII notation. All unspecified byte fields must be filled with space codes (20H).
- The initial value is specified as 'CBA ' when the standard keyboard is installed and 'ABCDHIJK ' when the item keyboard is installed.
- See 2.10, "Menu Function."

FTYPETBL (at 0EF50H) 38H bytes Type: o

- This table is used to specify the files which are to be displayed on the menu screen.
- Up to 4 types of files can be specified using the file extension. Each FTYPETBL entry consists of 14 bytes.



File

exten- sion	Space (20H)	COM file name correspond- ing to the specified file extension, and name of the drive in which the file resides
----------------	----------------	--

- 1 Space (20H)
- 2 COM file name corresponding to the specified file extension, and name of the drive in which the file resides

- The initial contents of FTYPEBL are shown below.

```
'COM.....'  
'BAS B: BASIC...'  
'.....'  
'.....'
```

- See 2.10, "Menu Function."

FTYPEND (at 0EF88H) 01H byte

ALRMDS (at 0EF89H) 01H byte

ALRMTP (at 0EF8AH) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not an alarm/wake time is set.
 - = 00H: No alarm/wake time is set.
 - = 01H: Alarm time is set.
 - = 02H: Wake time is set.
- See 2.9, "Alarm/Wake Function."

ALRMAD (at 0EF8BH) 02H bytes Type: #

- The initial value is 0F3DFH.
- Indicates the starting address of the alarm message or wake string.
- The initial value points to ALRMMSG.
- When rewriting the contents of ALRMAD in application programs, set ALRMAD to point to address 8000H or higher in RAM.
- See 2.9, "Alarm/Wake Function."

ALRMST (at 0EF8DH) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not an alarm/wake interrupt has occurred.
 - = 00H: No alarm/wake has occurred.
 - = 01H: Alarm/wake has occurred.
- ALRMST is set to 00H when an alarm/wake time is set or read by BIOS TIMDAT and 01H when an alarm/wake interrupt occurs.
- See 2.9, "Alarm/Wake Function."

ALRMFG (at 0EF8EH) 01H byte Type: x

- The initial value is 00H.
- This flag is used by the system to identify whether or not the next alarm interrupt is the first one generated for the currently-set alarm time.
 - = 00H: Alarm interrupts are to be accepted.
 - = 01H: Alarm interrupts are to be ignored.
- ALRMFG is set to 00H when ALRMCT (0F4D9H) is decremented to 00H by 1-second interrupts.
- See 4.3.3, "Alarm Hooks."

TIMER0 (at 0EF8FH) 02H bytes Type: #

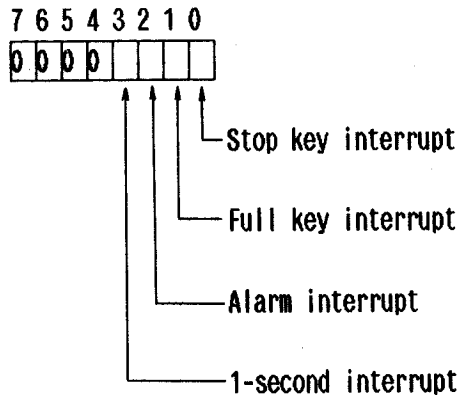
- The initial value is 0000H.
- TIMER0 is the 16-bit, 1-second up counter.
- This counter is incremented by each time 1-second interrupt occurs.
- The value of this counter must not be modified because it is commonly used by the system.
- See 4.7.4, "7508 Interrupts."

TIMER1 (at 0EF91H) 02H bytes Type: #

- The initial value is 0000H.
- TIMER1 is a 16-bit, 1-second down counter.
- This counter is decremented each time a 1-second interrupt occurs.
- See 4.7.4, "7508 Interrupts."

ISTS7508 (at 0EF93H) 01H byte Type: #

- The initial value is 0AH.
- This flag indicates whether 7508 interrupts are disabled or enabled.



(Interrupts are enabled when the corresponding bits are set to 1, and disabled when reset to 0.)

TOPRAM (at 0EF94H) 02H bytes Type: #

- The initial value is 0CC00H.
- Indicates the starting address of the user BIOS area.
- 0CC00H is specified when the user BIOS area size is set to 0 bytes.
- See 4.1, "User BIOS."

FORMATRAM (at 0EF96H) 01H byte Type: x

- The initial value is 00H.
- This flag indicates whether or not the 'RAM DISK FORMAT (Y/N)' prompt is to be displayed.
- = 00H: No prompt is to be displayed.
- = Nonzero: A prompt is to be displayed.
- See 2.4, "Power-on."

QT_ROM_CP1 (at 0EF97H) 01H byte Type: #

- Indicates the B-drive ROM capsule size in K byte units.
- The ROM size can be specified as 8K, 16K or 32K bytes.
- QT_ROM_CP1 = 00H indicates that no ROM capsule is installed.
- See 3.8, "Disk Storage."

QT_ROM_CP2 (at 0EF98H) 01H byte Type: #

- Indicates the C-drive ROM capsule size in K byte units.
- The ROM size can be specified as 8K, 16K or 32K bytes.
- QT_ROM_CP2 = 00H indicates that no ROM capsule is installed.
- See 3.8, "Disk Storage."

QT_ROM_CR1 (at 0EF99H) 01H byte Type: #
- Indicates the J-drive ROM cartridge size in K byte units.
- The ROM size can be specified as 8K, 16K or 32K bytes.
QT_ROM_CR1 = 00H indicates that no ROM cartridge is installed.
- See 3.8, "Disk Storage."

QT_ROM_CR2 (at 0EF9AH) 01H byte Type: #
- Indicates the K-drive ROM cartridge size in K byte units.
- The ROM cartridge size can be specified as 8K, 16K or 32K bytes.
QT_ROM_CR2 = 00H indicates that no ROM cartridge installed.
- See 3.8, "Disk Storage."

QT_RAM_CR (at 0EF9BH) 01H byte Type: #
- Indicates the I-drive RAM cartridge size in K byte units.
- The RAM size can be specified as 16K, 32K or 64K bytes.
QT_RAM_CR = 00H indicates that no RAM cartridge is installed.
- See 3.8, "Disk Storage."

QT_RAM_IN (at 0EF9CH) 01H byte Type: #
- Indicates the A-drive internal RAM disk size in K byte units.
- QT_RAM_IN = 00H indicates that no internal RAM disk is installed.
- See 3.8, "Disk Storage."

QT_RAM_EX (at 0EF9DH) 01H byte Type: #
- Indicates the A-drive external RAM disk size in K byte units.
- The RAM size can be specified as 64K or 128K bytes.
QT_RAM_EX = 00H indicates that no external RAM disk is installed.
- See 3.8, "Disk Storage."

DR_ROM_CP1 (at 0EF9EH) 01H byte Type: #
- Indicates the number of directory entries in the B-drive ROM capsule.
- DR_ROM_CP1 is specified according to the number of directory entries in the ROM header.
- See 3.8, "Disk Storage."

DR_ROM_CP2 (at 0EF9FH) 01H byte Type: #
- Indicates the number of directory entries in the C-drive ROM capsule.
- DR_ROM_CP2 is specified according to the number of directory entries in the ROM header.
- See 3.8, "Disk Storage."

DR_ROM_CR1 (at 0EFA0H) 01H byte Type: #
- Indicates the number of directories in the J-drive ROM cartridge.
- DR_ROM_CR1 is specified according to the number of directory entries in the ROM header.
- See 3.8, "Disk Storage."

AD_ROM_CP1 (at 0EFA2H) 02H bytes Type: #
- Indicates the B-drive ROM capsule header starting address.
- This address is affected by the ROM size and format. 0000H is specified when no ROM is installed.
- See 3.8, "Disk Storage."

AD_ROM_CP2 (at 0EFA4H) 02H bytes Type: #
- Indicates the C-drive ROM capsule header starting address.
- This address is affected by the ROM size and format. 0000H is specified when no ROM is installed.

AD_ROM_CR1 (at 0EFA6H) 02H bytes Type: #

- The initial value is 0000H.
- Indicates the J-drive ROM cartridge header starting address (fixed).
- See 3.8, "Disk Storage."

AD_ROM_CR2 (at 0EFA8H) 02H bytes Type: #

- The initial value is 8000H.
- Indicates the K-drive ROM cartridge header starting address (fixed).
- See 3.8, "Disk Storage."

AD_RAM_IN (at 0EFAAH) 02H bytes Type: #

- Indicates the A-drive internal RAM disk starting address.
 - This address is affected by the internal RAM disk size.
- AD_RAM_IN = 0000H indicates that no internal RAM disk is installed.
- See 3.8, "Disk Storage."

LOG_ADRS (at 0EFACH) 03H bytes Type: x

- This work area is used by the system to compute the logical disk address from the specified track and sector numbers when a disk access is made.

DSK_R_W (at 0EFAFH) 01H byte Type: x

- This work area is used by the system to determine whether to read or write at disk access time.

S_CHK_SUM (at 0EFB0H) 02H bytes Type: x

- This work area is used by the system to compute the checksum when a disk access is made.

QT_RAM_OLD (at 0EFB3H) 01H byte Type: x

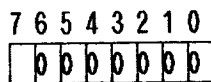
- This work area is used to store the old internal RAM disk size when modifying the internal RAM disk size.

AD_RAM_OLD (at 0EFB4H) 02H bytes Type: x

- This work area is used to store the old internal RAM disk starting address when modifying the internal RAM disk size.

DSPFLAG (at 0EFB6H) 01H byte Type: #

- The initial value is 00H.
- This flag indicates the ON/OFF state of the LCD screen.



Indicates the LCD screen display state.

= 0 : OFF

= 1 : ON

- The LCD screen state is set to ON (DSPFLAG = 80H) when the system is activated (power is turned on).
- DSPFLAG is used when the OR operation is executed between the contents of LVRAMYOF (0F2A0H) and DSPFLAG, and the result is loaded into YOFF (P09H).
- See 3.6, "LCD Display (CONOUT Details)."

BLNKSTAT (at 0EFB7H) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not cursor blink processing is to be performed using the OVF interrupt.
 - = 00H: No blink processing is to be performed.
 - = 01H: Blink processing is to be performed.
- This flag is set to 01H when the cursor state is set to ON and blink is specified by BIOS CONOUT.
- See 3.6, "LCD Display (CONOUT Details)."

BLNKCNT (at 0EFB8H) 01H byte Type: x

- This work area is used in OVF interrupt processing to measure the cursor blink interval.

BLNKRVS (at 0EFB9H) 01H byte Type: #

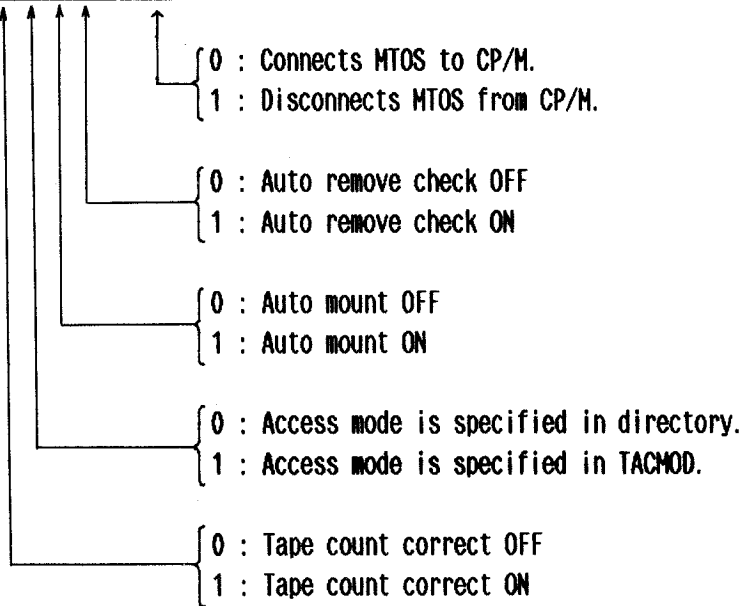
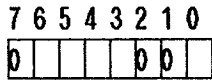
- The initial value is 00H.
- This flag indicates whether or not the cursor is currently displayed on the LCD screen.
 - = 00H: No cursor is currently displayed.
 - = 01H: Cursor is currently displayed.
- See 3.6, "LCD Display (CONOUT Details)."

BLNKTIME (at 0EFBAH) 01H byte Type: o

- The initial value is 04H.
- Indicates the cursor blink interval in 100 ms units.
- The initial value corresponds to approximately 500 ms.
- See 4.7.6, "OVF Interrupts."

TOSCTL (at 0EFBBH) 01H byte Type: o

- The initial value is 50H.
- This flag is used to specify MTOS operations.



- Do not rewrite the value of TOSCTL directly. Instead, use IDFLG (0FA13H) and TCNTTP (0FA14H) to modify the value.
- See 3.7.4, "Using MTOS."

STOSCTL (at 0EFBCH) 01H byte

TOSSTS (at 0EFBDH) 01H byte Type: x

- This work area is used to indicate the MTOS state or operation during MTOS processing.
- See 3.7, "MTOS/MIOS Operations."

VERFDFLT (at 0EFBEH) 01H byte Type: o

- The initial value is 00H.
- VERFDFLT is the default flag used to specify the verify mode when writing to tape.
 - = 00H : Non-verify mode
 - = Other than 00H: Verify mode
- This flag is copied into VERFFG (0EFBEH) at warm boot time.
- See 3.7.4, "Using MTOS."

VERFFG (at 0EFBEH) 01H byte Type: o

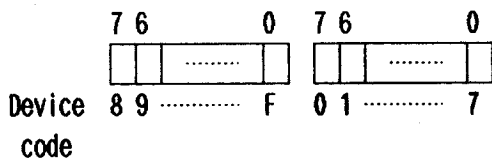
- The initial value is 00H.
- This flag is used to specify the verify mode when writing to the tape.
 - = 00H : Non-verify mode
 - = Other than 00H: Verify mode
- The initial value is loaded with the value of VERFDFLT (0EFBEH) at warm boot time.
- See 3.7.4, "Using MTOS."

MCTDETC (at 0EFC0H) 01H byte Type: o

- The initial value is 0FFH.
- If no MCT is installed at power-on time, the remove state is automatically specified.
 - = 00H: The mount/remove state is to remain unchanged.
 - = FFH: The remove state is to be automatically specified.
- This flag is used to prevent the current mount state from being changed when a cartridge other than an MCT cartridge is temporarily installed.
- See 3.7, "MTOS/MIOS Operations."

CRSTPTN (at 0EFC1H) 02H bytes Type: o

- The initial value is 41H, 40H.
- Specifies the *CRS signal state corresponding to each cartridge device code after power is turned on.



- Bit = 0: Set the $\overline{\text{CRS}}$ low.
- Bit = 1: Set the $\overline{\text{CRS}}$ high.

- The cartridge device codes are specified in bits 3-0 of CRGDEV (0F53FH).
- See 5.1, "Cartridges."

(Reserved) (0EFC3H) 0D bytes

6.2.3 System Area II (RSYSAR2)

This area is initialized at system initialize or reset time.

CPMSIZ (at 0EFD0H) 01H byte

INTBIOS (at 0EFD1H) 01H byte Type: #

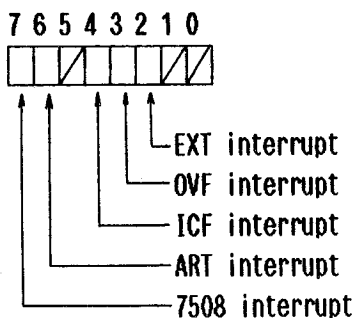
- The initial value is 00H.
- This flag indicates whether or not BIOS processing is currently being executed.
 - = 00H: No BIOS processing is currently being executed.
 - = 0FFH: BIOS processing is currently being executed.
- This flag is set to 0FFH by PREBIOS and reset to 00H by PSTBIOS.
- See 3.3, "BIOS Operations."

INTLEVEL (at 0EFD2H) 01H byte Type: x

- The initial value is 0FFH.
- This counter indicates the 7508 interrupt level.
 - = 0FFH: No 7508 interrupt processing performed
 - = Other than 0FFH: 7508 interrupt processing performed
- See 4.7.4, "7508 Interrupts."

INTTYPE (at 0EFD3H) 01H byte Type: #

- The initial value is 00H.
- Indicates what type of interrupt is generated.



- Each bit is set to 1 when the corresponding interrupt is generated.
- See 4.7, "Interrupts."

INTS7508 (at 0EFD4H) 02H bytes Type: x

- The initial value is SP7508.
- Loaded with the stack pointer initial value for 7508 interrupt processing.
- See 4.7, "Interrupts."

INTS8251 (at 0EFD6H) 02H bytes Type: x

- The initial value is SP8251.
- Loaded with the stack pointer initial value for ART interrupt processing.
- See 4.7, "Interrupts."

INTSICF (at 0EFD8H) 02H bytes Type: x

- The initial value is SPICF.
- Loaded with the stack pointer initial value for ICF interrupt processing.
- See 4.7, "Interrupts."

INTSOVF (at 0EFD9H) 02H bytes Type: x

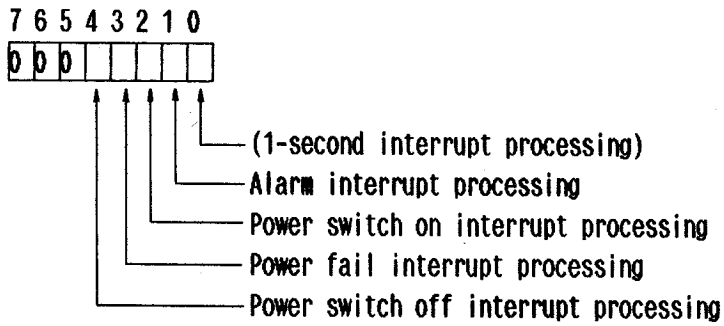
- The initial value is SPOVF.
- Loaded with the stack pointer initial value for OVF interrupt processing.
- See 4.7, "Interrupts."

INTSEXT (at 0EFDCH) 02H bytes Type: x

- The initial value is SPEXT.
- Loaded with the stack pointer initial value for external interrupt processing.
- See 4.7, "Interrupts."

TBL7508 (at 0EFDEH) 10H bytes Type: o

- This table is used to pass control to the pertinent interrupt servicing routine according to the type of the 7508 interrupt.
- The bit assignments of each byte are shown below.



(When a bit is set to 1, the corresponding type of processing is executed.)

- The table format is shown below. When 7508 interrupt processing is performed, the appropriate type of processing routine is selected from this table by referring to the 7508 status that is read with a Status Read command and the current power switch state. Also, 1-second interrupt processing is activated by software according to the 7508 status after the correct interrupt processing is selected from this table.

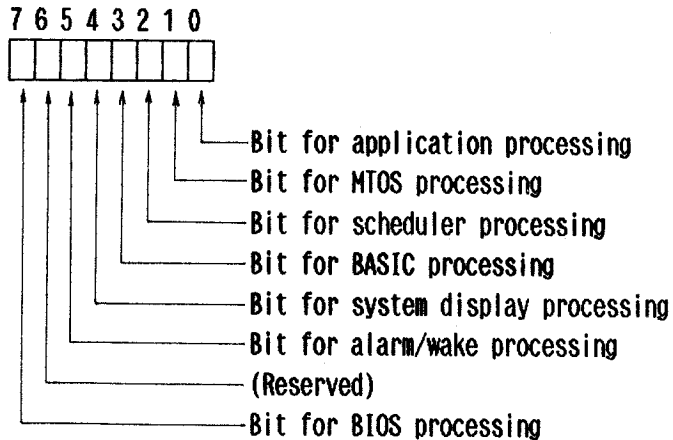
Address	7508 status	Power switch state	Initial value
EFDEH	C0H or E0H	OFF	00H
DFH	"	ON	10H
E0H	C1H or E1H	OFF	04H
E1H	"	ON	00H
E2H	C2H or E2H	OFF	02H
E3H	"	ON	12H
E4H	C3H or E3H	OFF	04H
E5H	"	ON	02H
E6H	C4H or E4H	OFF	08H
E7H	"	ON	10H
E8H	C5H or E5H	OFF	08H
E9H	"	ON	08H
EAH	C6H or E6H	OFF	08H
EBH	"	ON	10H
ECH	C7H or E7H	OFF	08H
EDH	"	ON	08H

BTRYFG (at 0EFEEH) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not a power failure has occurred.
 - = 00H: No power failure has occurred.
 - = 0FFH: Power failure has occurred.
- See 4.7.4, "7508 Interrupts."

YPOFDS (0EFEFH) 1 byte Type: o

- The initial value is 00H.
- This flag is used to disable power off processing.



(When each bit is set to 1, the corresponding processing is disabled.)

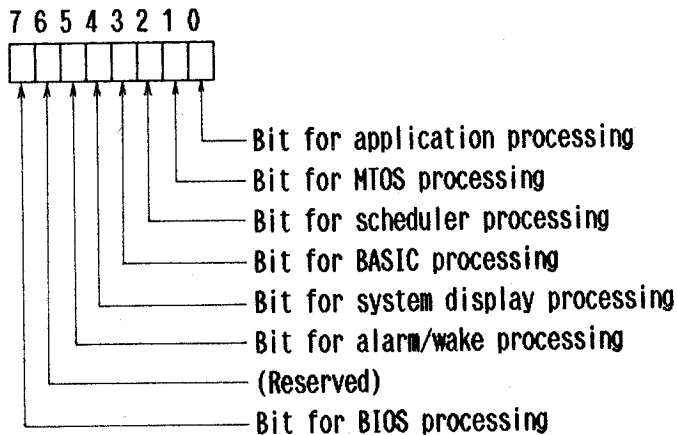
- See 4.7.3 for the actual procedure for inhibiting each type of processing.
- See 4.7.3, "Interrupt Control."

YPOFST (at 0EFF0H) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not a power-off interrupt has occurred while power-off processing is disabled by YPOFDS (0EFEFH).
- When a power-off interrupt occurs, the value of YPOFDS is copied into this flag.
- See 4.7.3, "Interrupt Control."

YALMDS (at 0EFF1H) 01H byte Type: o

- The initial value is 00H.
- This flag is used to disable alarm screen display processing.



(When each bit is set to 1, the corresponding type of processing is disabled.)

- See 4.7.3 for the actual procedure for inhibiting each type of processing.
- See 4.7.3, "Interrupt Control."

YALMST (at 0EFF2H) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not an alarm interrupt has occurred while alarm screen display processing is disabled by YALMDS (0EFF1H).
- When an alarm interrupt occurs, the value of YALMDS is copied into this flag.

CONSCRN1 (at 0EFF3H) 08H bytes Type: o

- The initial values are 1BH, 0D0H, 19H, 50H, 1BH, 95H, 02H and 00H.
- CONSCRN1 is the screen parameter data which is initialized at boot time.

1st byte: ESC (1BH)
 2nd byte: 0D0H
 3rd byte: Number of screen lines
 4th byte: Number of screen columns
 5th byte: ESC (1BH)
 6th byte: 95H
 7th byte: Scrolling mode
 8th byte: 00H

The first four bytes specify the screen size. The initial screen size is 80 columns by 25 lines.

The fifth to seventh bytes specify the window scrolling mode. The initial setting is for horizontal non-tracking mode.

- This area is used by BIOS CONOUT to specify the screen state.
- See 3.6.7, "Miscellaneous Considerations."

CONSCRN2 (at 0EFFBH) 06H bytes Type: o

- The initial values are 1BH, 33H, 1BH, 0D6H, 00H and 0FFH.
- This screen parameter data is initialized at warm boot time.

1st byte: ESC (1BH)
2nd byte: Cursor display on/off
3rd byte: ESC (1BH)
4th byte: 0D6H
5th byte: Cursor type
6th byte: 0FFH

The first two bytes specify whether the cursor is to be turned on or off. The initial display mode is cursor display on.

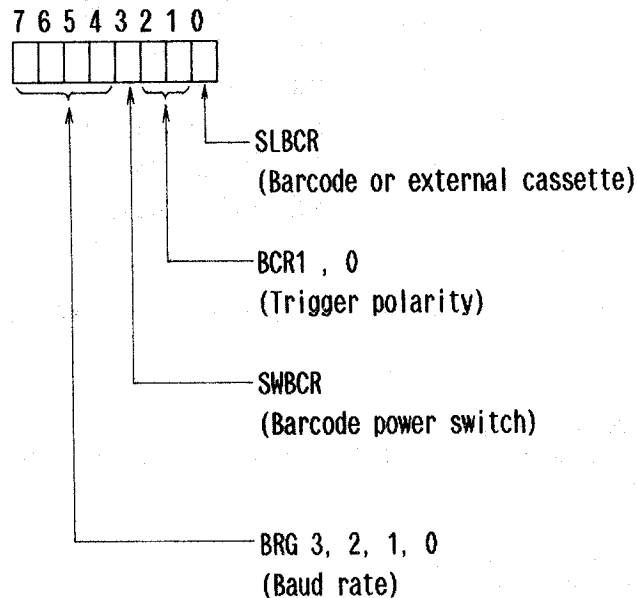
The third to fifth bytes specify the cursor type. The initial specification is for a block-type, blinking cursor.

0FFH identifies the end of the parameter block.

- This area is used by BIOS CONOUT to specify the screen state.
- See 3.6.7, "Miscellaneous Considerations."

RZCTRL1 (at 0F001H) 01H byte Type: o

- Stores the output state of the control register 1 (P00H).

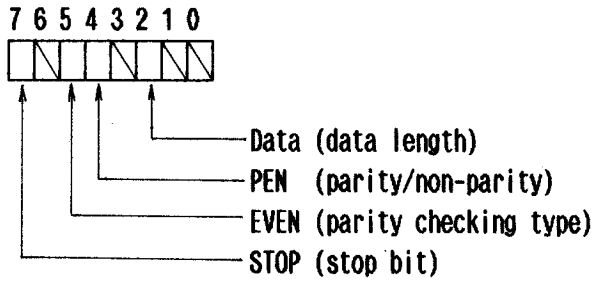


- The bit assignments for this area are identical to those for CTRL1 (P00H).
- See Chapter 5, "I/O Operations."

RZCMDR (at 0F002H) 1 byte

RZARTMR (at 0F003H) 01H byte Type: o

- Stores the output state of the ART mode register (P15H).

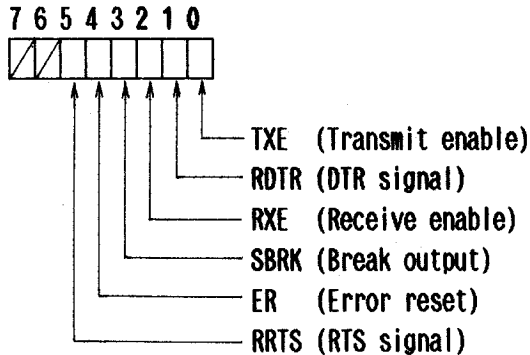


- The bit assignments for this area are identical to those for ARTMR (P15H).

- See Chapter 5, "I/O Operations."

RZARTCR (at 0F004H) 01H byte Type: o

- Stores the output state of the ART command register (P1BH).

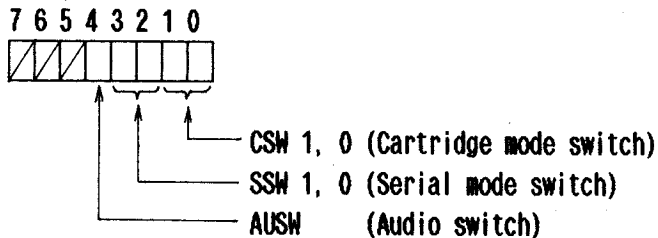


- The bit assignments for this area are identical to those for ARTCR (P16H).

- See Chapter 5, "I/O Operations."

RZSWR (at 0F005H) 01H byte Type: o

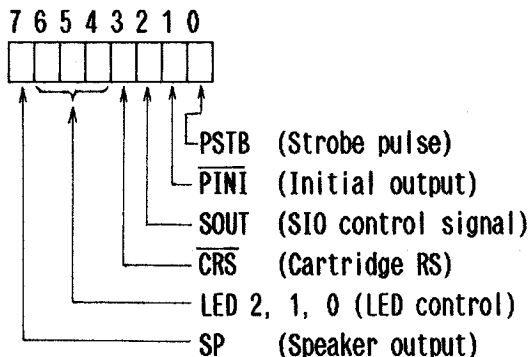
- Stores the output state of the switch register (P18H).



- The bit assignments for this area are identical to those for SWR (P18H).
- See Chapter 5, "I/O Operations."

RZIOCTLR (at 0F006H) 01H byte Type: o

- Stores the output state of the I/O control register (P19H).



- The bit assignments for this area are identical to those for IOCTLR (P19H).
- See Chapter 5, "I/O Operations."

RZDBWDAT (at 0F007H) 01H byte Type: #

- The initial value is 00H.
- Indicates the current ROM cartridge power supply state.
 - = 00H: Power off state
 - = 01H: Power on state
- See 5.1.3, "ROM Cartridge."

KEYF (at 0F008H) 01H byte Type: x

- The initial value is 00H.
- KEYF is the console buffer (KEYD) status flag.
 - = 00H: No input data present
 - = 0FFH: Input data present
- See 3.5, "Keyboard."

KEYD (at 0F009H) 01H byte Type: x

- KEYD is a 1-byte console input buffer.
- When keyed data is entered, it is loaded into this area and KEYF is set by BIOS CONST.
- See 3.5, "Keyboard."

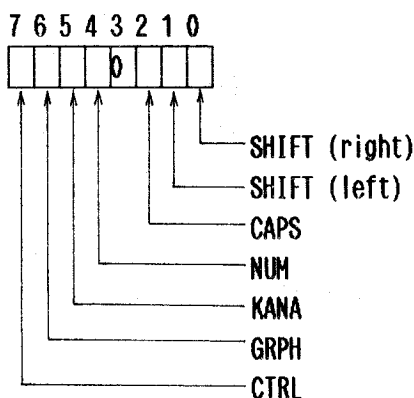
KEYS (at 0F00AH) 01H byte Type: x

- The initial value is 00H.
- Indicates the console buffer (KEYD) input key status.
 - = 00H: Non-check-mode data
 - = 0FFH: Check-mode data
- See 3.5, "Keyboard."

YINTPTR (at 0F00BH) 02H bytes Type: #
 - The initial value is KBUF.
 - YINTPTR is the key buffer (KBUF) input key code 'put' pointer.
 - See 3.5, "Keyboard."

YKEYPTR (at 0F00DH) 02H bytes Type: #
 - The initial value is KBUF.
 - YKEYPTR is the key buffer (KBUF) input key code 'get' pointer.
 - See 3.5, "Keyboard."

YSHFDT (at 0F00FH) 01H byte Type: #
 - The initial value is 00H.
 - Indicates the shift key state of the standard keyboard.



(Bits 5-2 are set to 1 when the corresponding modes are set to ON; other bits are set to 1 when the corresponding shift keys are pressed.)

- Bit 5 is 'don't care' in ASCII-version OS.
 - See 3.5, "Keyboard."

ZSHIFT (at 0F010H) 02H bytes Type: x
 - Loaded with the starting address of the selected key code conversion table based on the current shift state.
 - See 3.5, "Keyboard."

YPFKSTR (at 0F012H) 02H bytes Type: o
 - The initial value is 0F545H.
 - Loaded with the starting address of the PF key table.
 - When the initial value is set, YPFKSTR points to WPFKTBL.
 - When modifying this address in application programs, set it to point to address 8000H or higher in RAM.
 - See 3.5.3, "Standard Keyboard."

YPFKPTR (at 0F014H) 02H bytes Type: x
 - The initial value is 0000H.
 - YPFKPTR is the get pointer for PF key or item key strings.
 - See 3.5, "Keyboard."

YPFKCNT (at 0F016H) 01H byte Type: x
 - The initial value is 00H.
 - This counter indicates the number of the characters left in the buffer containing the PF key or item key string.
 - See 3.5, "Keyboard."

YPCFCLG (at 0F017H) 01H byte Type: o

- The initial value is 00H.
- This flag specifies the PF key check mode.
 - = 00H: Non-check mode
 - = 0FFH: Check mode
- When a PF key is pressed after YPCFCLG is set to 0FFH, the PF key is returned, instead of the character string corresponding to the PF key.
- This flag is valid only when the standard keyboard is installed.
- See (4) CONIN in 3.4.2.

YSCFCLG (at 0F018H) 01H byte Type: o

- The initial value is 00H.
- This flag specifies the special key (SHIFT/arrow, CTRL/arrow) check mode.
 - = 00H: Non-check mode
 - = 0FFH: Check mode
- When a special key is pressed after YSCFCLG is set to 0FFH, the special key system function is disabled, and instead the key code corresponding to the special key is returned.
- This flag is valid only when the standard keyboard is installed.
- See (4) CONIN in 3.4.2.

BRKFLG (at 0F019H) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not the STOP key has been pressed.
 - = 00H: STOP key not pressed.
 - = 0FFH: STOP key pressed.
- This flag is reset when BIOS CONST or CONIN is called.
- See 3.5.3, "Standard Keyboard."

CSTOPFLG (at 0F01AH) 01H byte Type: #

- The initial value is 00H.
- This flag indicates whether or not the CTRL/STOP keys have been pressed.
 - = 00H: CTRL/STOP keys pressed.
 - = 01H: CTRL/STOP keys not pressed.
- This flag is reset when BIOS CONST or CONIN is called.
- See 3.5.3, "Standard Keyboard."

CSTOPMCT (at 0F01BH) 01H byte Type: #

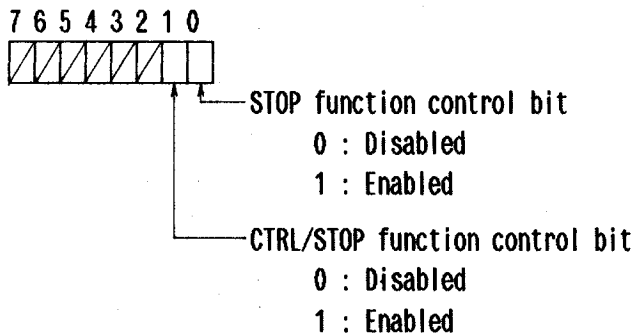
- The initial value is 00H.
- This flag indicates whether or not MCT processing is to be interrupted when the CTRL/STOP keys are pressed.
 - = 00H: MCT processing not to be interrupted.
 - = 01H: MCT processing to be interrupted.
- This flag is reset by PSTBIOS.
- See 3.5.3, "Standard Keyboard."

IMSHFT (at 0F01CH) 01H byte Type: #

- The initial value is 00H.
- Indicates the keyboard shift mode when the item keyboard is installed.
 - = 00H: Normal mode
 - = 20H: Shift mode
- See 3.5.4, "Item Keyboard."

ITEMFLG (at 0F01DH) 01H byte Type: o
 - The initial value is 00H.
 - This flag is used to switch to the item mode on the standard keyboard.
 = 00H: Normal mode
 = 80H: Item mode
 - When the item mode is specified, the keys corresponding to codes 40H to 7FH serve as item function keys.
 - See 3.5.4, "Item Keyboard."

ISYSREG (at 0F01EH) 01H byte Type: o
 - The initial value is 03H.
 - This flag controls the STOP and CTRL/STOP functions when the item keyboard is installed.

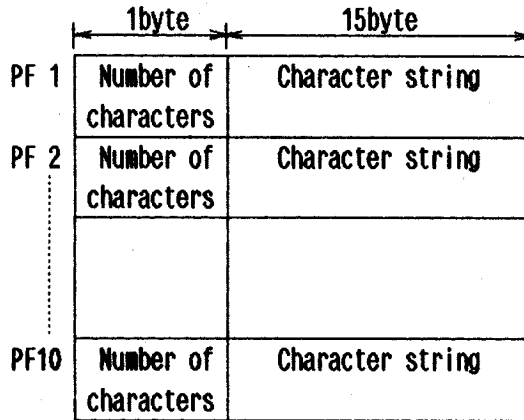


- See 3.5.4, "Item Keyboard."

DFLTRT (at 0F01FH) 0EH bytes Type: o
 - Loaded with the default key codes of the arrow, SHIFT/arrow and CTRL/arrow keys.

Address	Key	Default value	Address	Key	Default value
0F01FH	→	1CH	0F026H	SHIFT /↓	FBH
0F020H	←	1DH	0F027H	SHIFT /INS	FGH
0F021H	↑	1EH	0F028H	CTRL /→	FCH
0F022H	↓	1FH	0F029H	CTRL /←	FDH
0F023H	SHIFT /→	0F8H	0F02AH	CTRL /↑	FEH
0F024H	SHIFT /←	0F9H	0F02BH	CTRL /↓	FFH
0F025H	SHIFT /↑	0FAH	0F02CH	CTRL /INS	F8H

- This area is copied into the 14-byte area starting at CHGRIGT.
 - It is possible to modify key codes or functions by rewriting this area.
 - See 3.5.3, "Standard Keyboard."
- PFKTAB (at 0F02DH) A0H bytes Type: o
- PFKTAB contains the default definitions of the PF keys.



- The number of characters may be in the range of 00H to 0FH. 00H indicates that no character string is defined.
- This area is copied into the 160-byte area starting at WPFKTBL (0F545H).
- See 3.5.3, "Standard Keyboard."

YSUBRTN (at 0F0CDH) 10H bytes Type: o

- This is a jump table used when calling subroutines by using the CTRL/special keys.

Address	Key for activating subroutine	Default function
0F0CDH	CTRL/ESC	Does nothing and return.
0F0CFH	CTRL/PAUSE	Does nothing and return.
0F0D1H	CTRL/HELP	System display.
0F0D3H	CTRL/PF1	Does nothing and return.
0F0D5H	CTRL/PF2	Does nothing and return.
0F0D7H	CTRL/PF3	Does nothing and return.
0F0D9H	CTRL/PF4	Does nothing and return.
0F0DBH	CTRL/PF5	Screen dump.

- When rewriting this area, set each address to point to 8000H or higher in RAM.
- See 3.5.3, "Standard Keyboard."

ITCDTB (at 0F0DDH) 18H bytes Type: o

- This is the redefinition table for the numeric keypad section on the item keyboard.

Address	Character on keypad	Default code	Address	Character on keypad	Default code
F0DDH	STOP	03H	F0E9H	=	3DH
DEH	△	1EH	EAH	4	34H
DFH	▽	1FH	EBH	5	35H
E0H	◀	1DH	ECH	6	36H
E1H	▶	1CH	EDH	,	2CH
E2H	*	2AH	EEH	1	31H
E3H	/	2FH	EFH	2	32H
E4H	+	2BH	FOH	3	33H
E5H	-	2DH	F1H	0	30H
E6H	7	37H	F2H	000	FFH
E7H	8	38H	F3H	.	2EH
E8H	9	39H	F4H	↵	0DH

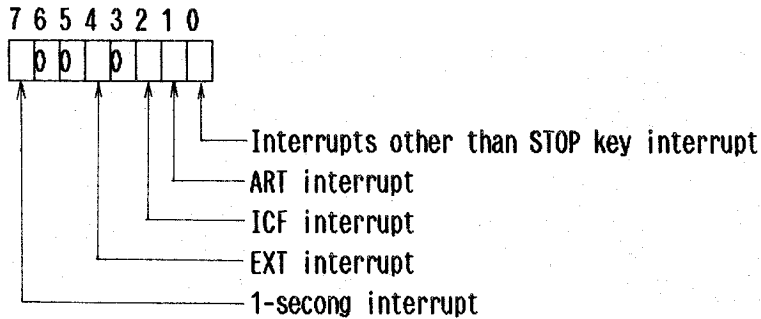
- See 3.5.4, "Item Keyboard."

- It is possible to modify key codes by rewriting this area. 0FFH indicates that '0' (30H) is repeated three times.

BPINTEBL (at 0F0F5H) 01H byte Type: o

- The initial value is 01H.

- This flag controls interrupts during BEEP processing.



(A 1 in a bit position disables the corresponding interrupt and a 0 has no effect.)

- OVF interrupts are always disabled during BEEP processing.
- This flag is set to avoid note fluctuations which would be caused by interrupts while generating a beep.
- See (20) BEEP in 3.4.2.

PROMPWR (at 0F0F6H) 01H byte

HSBKCD (at 0F0F7H) 01H byte Type: o

- The initial value is 0FH.
- Specifies the command code corresponding to a BREAK command for the HS-mode cartridge.

HSBKAK (at 0F0F8H) 01H byte Type: o

- The initial value is 02H.
- Specifies the ACK code corresponding to a BREAK command for the HS-mode cartridge.

AHSTWRT (at 0F0F9H) 01H byte Type: #

- The initial value is 00H.
- Indicates whether or not write data (to FDD drive D: or E:) is present.
 - = 00H: No write data present
 - = 31H: Write data present
- This flag is set when a Write or Read is executed on the FDD (D: or E:).
- See 3.4, "BIOS Details."

BHSTWRT (at 0F0FAH) 01H byte Type: #

- The initial value is 00H.
- Indicates whether or not write data (to FDD drive F: or G:) is present.
 - = 00H: No write data pending
 - = 32H: Write data pending
- This flag is set when a Write or Read is executed on the FDD (F: or G:).
- See 3.4, "BIOS Details."

ADSKOPN (at 0F0FBH) 01H byte Type: #

- The initial value is 00H.
- Indicates the FDD (D: or E:) open state.
 - = 00H: Not opened
 - = 0FFH: Opened
- This flag is set when BIOS SELDSK is executed on the FDD (D: or E:).
- See 3.4, "BIOS Details."

BDSKOPN (at 0F0FCH) 01H byte Type: #

- The initial value is 00H.
- Indicates the FDD (F: or G:) open state.
 - = 00H: Not opened
 - = 0FFH: Opened
- This flag is set when BIOS SELDSK is executed on the FDD (F: or G:).
- See 3.4, "BIOS Details."

DSKDID (at 0F0FDH) 01H byte Type: x

- The initial value is 31H.
- Indicates the EPSP DID code used when transmitting to or receiving from a FDD.
- 31H (D: or E:) or 32H (F: or G:) is valid.
- See 5.3, "Terminal Floppy (TF)."

DSKSID (at 0F0FEH) 01H byte Type: x

- The initial value is 23H.
- Indicates the EPSP SID code used when transmitting to or receiving from a FDD.
- The initial value (23H) indicates PINE.
- See 5.3, "Terminal Floppy (TF)."

DISKTBL (at 0F0FFH) 0BH bytes Type: o

- DISKTBL is the logical-to-physical drive assignment table.
- Loaded with the physical drive codes corresponding to the logical drive names.

Address	Logical drive name	Initial value
0F0FFH	A:	00H
0F100H	B:	01H
0F101H	C:	02H
0F102H	D:	03H
0F103H	E:	04H
0F104H	F:	05H
0F105H	G:	06H
0F106H	H:	07H
0F107H	I:	08H
0F108H	J:	09H
0F109H	K:	0AH

- The correspondence between the physical drive codes and media is shown below.

Physical drive code	Media	Physical drive code	Media
00H	RAM disk	06H	FDD (G:)
01H	ROM capsule 1	07H	Microcassette
02H	ROM capsule 2	08H	RAM cartridge
03H	FDD (D:)	09H	ROM cartridge 1
04H	FDD (E:)	0AH	ROM cartridge 2
05H	FDD (F:)		

- Certain points must be noted when modifying the contents of this table. Refer to Subsection 3.8.2.
- See 3.8, "Disk Storage."

ROMCPNO1 (at 0F10AH) 01H byte Type: o

- The initial value is 01H.
- Indicates the drive code for ROM capsule 1 (B:).
- Loaded with the ROM capsule 1 offset with respect to the beginning of DISKTBL.
- See 3.8, "Disk Storage."

ROMCPNO2 (at 0F10BH) 01H byte Type: o

- The initial value is 02H.
- Indicates the drive code for ROM capsule 2 (C:).
- Loaded with the ROM capsule 2 offset with respect to the beginning of DISKTBL.
- See 3.8, "Disk Storage."

DISKROV (at 0F10CH) 02H bytes Type: o

- The initial values are 06H, 06H.
- Indicates the disk read-only state.

	7 6 5 4 3 2 1 0
+00H	H G F E D C B A

	7 6 5 4 3 2 1 0
+01H	0 0 0 0 0 K J I

(Each bit is set to 1 for read-only, and reset to 0 for read/write.)

- The bits are associated with logical drives A: through K: as shown above.
- Logical drives B:, C:, J:, and K: are initially set to read-only.
- See 3.8, "Disk Storage."

FTSTAB (at 0F10EH) 16H bytes Type: x

- This jump table is used when BIOS SELDSK is called to select a disk for the first time.
- Loaded with the processing starting addresses of drives A: through K:. The length of each address is 2 bytes.
- See 3.4, "BIOS Details."

READTAB (at 0F124H) 16H bytes Type: x

- This the jump table is used to read a disk during execution of a BIOS READ call.
- Loaded with the processing starting addresses of drives A: through K:. The length of each address is 2 bytes.
- See 3.4, "BIOS Details."

WRTTAB (at 0F13AH) 16H bytes Type: x

- This jump table is used to write to a disk during execution of a BIOS WRITE call.
- Loaded with the processing starting addresses of logical drives A: through K:. The length of each address is 2 bytes.
- See 3.4, "BIOS Details."

DPBASE (at 0F150H) B0H bytes Type: #

- DPBASE is the disk parameter header associated with each drive.
- Loaded with the 16-byte disk parameter headers corresponding to drives A: through K:.

(Disk parameter header)

+0	XLn
1	(Translation table)
2	Used by BDOS as scratch pad area (6 bytes)
3	
4	
5	
6	
7	
8	DIRBUF
9	(Directory buffer)
10	DPBn
11	(Disk parameter block)
12	CSVn
13	(Check vector)
14	ALVn
15	(Allocation vector)

- See 3.8, "Disk Storage."

DPB0 (at 0F200H) 0FH bytes Type: #

- The disk parameter block for the RAM disk.

(Disk parameter block)

+0	SPT	Sectors Per Track
1		
2	BSH	Block Shift Factor
3	BLM	Block Mask
4	EXM	Extent Mask
5	DSM	Disk Size Max
6		
7	DRM	Directory Entries Max
8		
9	ALO	Directory Entries
10	AL1	Block
11	CKS	Check Vector Size
12		
13	OFF	Track Offset
14		

- See 3.8, "Disk Storage."

DPB1 (at 0F20FH) 0FH bytes Type: #

- The disk parameter block for ROM capsule 1.
- See 3.8, "Disk Storage."

DPB2 (at 0F21EH) 0FH bytes Type: #

- The disk parameter block for ROM capsule 2.
- See 3.8, "Disk Storage."

DPB3 (at 0F22DH) 0FH bytes Type: #

- The disk parameter block for the FDD.
- See 3.8, "Disk Storage."

DPB7 (at 0F23CH) 0FH bytes Type: #

- The disk parameter block for the MCT cartridge.
- See 3.8, "Disk Storage."

DPB8 (at 0F24BH) 0FH bytes Type: #

- The disk parameter block for the RAM cartridge.
- See 3.8, "Disk Storage."

DPB9 (at 0F25AH) 0FH bytes Type: #

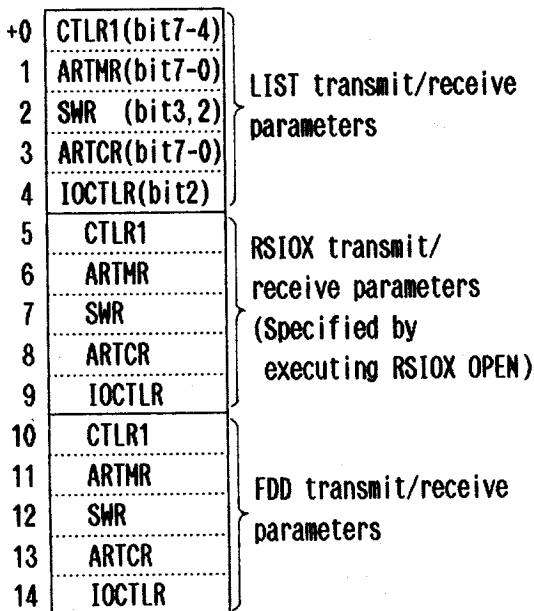
- The disk parameter block for ROM cartridge 1.
- See 3.8, "Disk Storage."

DPB10 (at 0F269H) 0FH bytes Type: #

- The disk parameter block for ROM cartridge 2.
- See 3.8, "Disk Storage."

RSBYTE (at 0F278H) 01H byte

SRTABL (at 0F279H) 0FH bytes Type: o
 - The initial values are 60H, 84H, 08H, 37H, 04H, 60H, 84H, 08H, 37H, 04H, B0H, 04H, 04H, 37H, and 04H.
 - Loaded with the serial transmit/receive parameters for LIST, RSIOX and FDD..



- The bit assignments of this area are identical to those of the specified I/O register. Bits in parenthesis indicate valid bits.
 - See 5.2, "Serial Interfaces."

EPTRCN (at 0F288H) 01H byte Type: o
 - The initial value is 03H.
 - Specifies the number of retries to be made when no response is received while sending or receiving EPSP data.
 - See 5.3, "Terminal Floppy (TF)."

EPTIMO (at 0F289H) 01H byte Type: o
 - The initial value is 0AH.
 - Specifies the number of retries to be made when timeout conditions occur while receiving 1 byte of EPSP data.
 - See 5.3, "Terminal Floppy (TF)."

EPETMO (at 0F28AH) 01H byte Type: o
 - The initial value is 64H.
 - Specifies the number of retries to be made when timeout conditions occur while receiving a block of EPSP data.
 - See 5.3, "Terminal Floppy (TF)."

EPATMO (at 0F28BH) 01H byte Type: o

- The initial value is 0AH.
- Specifies the number of retries to be made when timeout conditions occur while receiving an ACK using EPSP protocol.
- See 5.3, "Terminal Floppy (TF)."

EPMODE (at 0F28CH) 01H byte Type: o

- The initial value is 00H.
- Specifies the mode for EPSP data transmission/reception.
 - = 00H : Master mode (to send the header)
 - = Other than 00H: Slave mode (to omit sending the header)
- See 5.3, "Terminal Floppy (TF) "

EPETDL (at 0F28DH) 01H byte

EP1BRTO (at 0F28EH) 02H bytes Type: o

- The initial value is 1C2FH.
- Specifies the number corresponding to the time when a timeout occurs after an EPSP data byte is received.
- The unit is approximately 13.86 μ s. The initial value is equivalent to approximately 100 msec.
- See 5.3, "Terminal Floppy (TF)."

LSCADDR (at 0F290H) 02H bytes Type: #

- The initial value is D000H.
- Indicates the starting address of the buffer for the currently displayed screen.
- See 3.6, "LCD Display (CONOUT Details)."

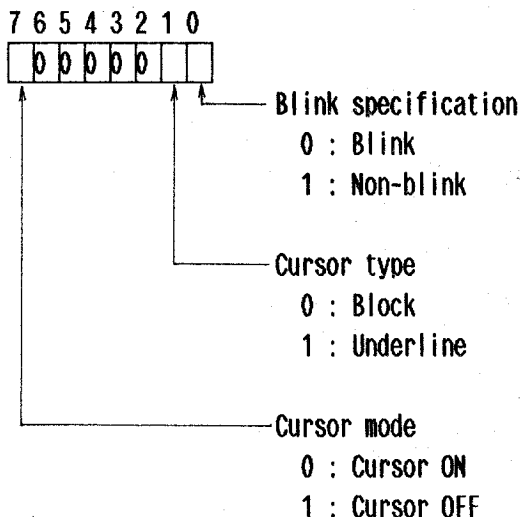
LSCSIZE (at 0F292H) 02H bytes Type: #

- The initial value is 0800H.
- Indicates the screen buffer size.
- LSCSIZE is equal to LSCSIZEEX x LSCSIZEY.
- See 3.6, "LCD Display (CONOUT Details)."

LSCRVRAM (at 0F294H) 02H bytes Type: #

- The initial value is E000H.
- Indicates the starting address of the currently displayed VRAM.
- The result of LSCRVRAM + 1 (0F295H) is loaded into VADR (P08H).
- See 3.6, "LCD Display (CONOUT Details)."

- LCURSOR (at 0F296H) 01H byte Type: #
- The initial value is 00H.
 - This flag indicates the cursor state, including mode and type.



- See 3.6, "LCD Display (CONOUT Details)."

- LCRVRSW (at 0F297H) 01H byte Type: #
- The initial value is 00H.
 - Indicates whether or not the reverse display mode is set.
 - = 00H: Reverse display mode OFF
 - = 01H: Reverse display mode ON
 - See 3.6, "LCD Display (CONOUT Details)."

- LSCCPOSX (at 0F298H) 01H byte Type: #
- The initial value is 01H.
 - Indicates the horizontal position of the cursor on the screen.
 - $1 \leq \text{LSCCPOSX} \leq \text{LSCSIZEX}$
 - See 3.6, "LCD Display (CONOUT Details)."

- LSCCPOSY (at 0F299H) 01H byte Type: #
- The initial value is 01H.
 - Indicates the vertical position of the cursor on the screen.
 - $1 \leq \text{LSCCPOSY} \leq \text{LSCSIZEY}$
 - See 3.6, "LCD Display (CONOUT Details)."

- LSCSIZEX (at 0F29AH) 01H byte Type: #
- The initial value is 50H.
 - Indicates the number of columns on the screen.
 - LSCSIZEX can be specified as 40 or 80. The initial value specifies 80 columns in the horizontal direction.
 - See 3.6, "LCD Display (CONOUT Details)."

- LSCSIZEY (at 0F29BH) 01H byte Type: #
- The initial value is 19H.
 - Indicates the number of lines on the screen.
 - Any number within the range of 8 to 50 can be specified as LSCSIZEY. The initial value specifies 25 lines in the vertical direction. Note that LSCSIZEX x LSCSIZEY must not exceed 2000.
 - See 3.6, "LCD Display (CONOUT Details)."

LWDXMIN (at 0F29CH) 01H byte Type: #
- The initial value is 01H.
- Indicates the upper left column position of the window on the screen.
- LWDXMIN can be specified as 1, 20, or 40.
- See 3.6, "LCD Display (CONOUT Details)."

LWDYMIN (at 0F29DH) 01H byte Type: #
- The initial value is 01H.
- Indicates the upper left line position of the window on the screen.
 $1 \leq \text{LWDYMIN} \leq \text{LSCSIZEY} - 8$
- See 3.6, "LCD Display (CONOUT Details)."

LWDCPOSX (at 0F29EH) 01H byte Type: #
- The initial value is 00H.
- Indicates the X-coordinate of the cursor relative to the window.
 = 0FDH : Inside the right margin
 = 0FEH : Inside the left margin
 = 0FFH : Outside the window
 = 00H - 27H: Inside the window
- See 3.6, "LCD Display (CONOUT Details)."

LWDCPOSY (at 0F29FH) 01H byte Type: #
- The initial value is 00H.
- Indicates the Y-coordinate of the cursor relative to the window.
 = 0FFH : Outside the window
 = 00H - 07H: Inside the window
- See 3.6, "LCD Display (CONOUT Details)."

LVRAMYOF (at 0F2A0H) 01H byte Type: #
- The initial value is 00H.
- Indicates the Y-direction offset of VRAM.
 $00H \leq \text{LVRAMYOF} \leq 3FH$
- LVRAMYOF is used when loading YOFF (P09H) with the result of the OR operation performed on DSPFLAG (0EFB6H) and LVRAMYOF.
- See 3.6, "LCD Display (CONOUT Details)."

LWDTYPE (at 0F2A1H) 01H byte Type: #
- The initial value is 01H.
- Indicates where the window is located on the screen.
 = 0FEH: Right screen (scroll step = 40)
 = 0FFH: Left screen (scroll step = 40)
 = 00H: Screen width is 40
 = 01H: Left screen (scroll step = 20)
 = 02H: Center screen (scroll step = 20)
 = 03H: Right screen (scroll step = 20)
- See 3.6, "LCD Display (CONOUT Details)."

LSECRETW (at 0F2A2H) 01H byte Type: #
- The initial value is 00H.
- This flag indicates the secret mode on/off state.
 = 00H: Secret mode off
 = 01H: Secret mode on
- See 3.6, "LCD Display (CONOUT Details)."

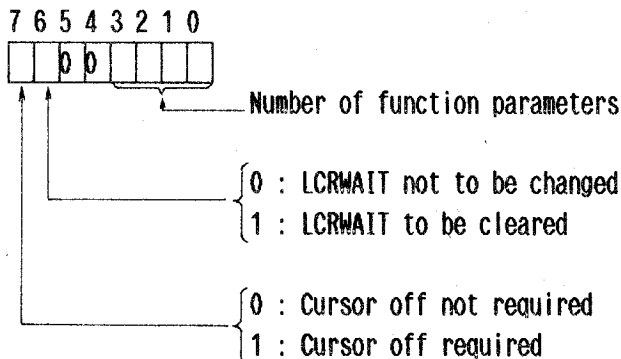
LSCROLMD (at 0F2A3H) 01H byte Type: #
 - The initial value is 02H.
 - This flag indicates the scroll mode which is currently specified.
 = 00H: Tracking mode
 = 01H: Non-tracking mode
 = 02H: Horizontal non-tracking mode
 - See 3.6, "LCD Display (CONOUT Details)."

LSCROLX (0F2A4H) 01H byte Type: #
 - The initial value is 14H.
 - Indicates the number of horizontal scroll steps.
 LSCROLX = 14H or 28H
 - Horizontal scrolling is available when LSCSIZEY = 80.
 - See 3.6, "LCD Display (CONOUT Details)."

LSCROLY (0F2A5H) 01H byte Type: #
 - The initial value is 01H.
 - Indicates the number of vertical scroll steps.
 01H ≤ LSCROLY ≤ 08H
 - Vertical scrolling is available when LSCSIZEY ≥ 09H.
 - See 3.6, "LCD Display (CONOUT Details)."

LCRWAIT (at 0F2A6H) 01H byte Type: #
 - The initial value is 00H.
 - LCRWAIT is the carriage return check flag.
 = 00H: Carriage return check mode off
 = 01H: Carriage return check mode on
 - The carriage return check mode is turned on when the cursor moves from the end of a line to the beginning of the next line after a character is displayed by BIOS CONOUT. If CR (0DH) is output with BIOS CONOUT immediately after this, the cursor moves to the beginning of the previous line.
 - See 3.6, "LCD Display (CONOUT Details)."

LFKSTAT (at 0F2A7H) 01H byte Type: #
 - Indicates the CONOUT function status.



- See 3.6, "LCD Display (CONOUT Details)."

LFKADDR (at 0F2A8H) 02H bytes Type: #
 - Indicates the address of the CONOUT function processing routine.
 - See 3.6, "LCD Display (CONOUT Details)."

LESCFLG (at 0F2AAH) 01H byte Type: #
 - The initial value is 00H.
 - Indicates whether or not an ESC sequence is received while calling CONOUT.
 = 00H: ESC code not received
 = 01H: ESC code received
 = 02H: ESC code and function received
 - See 3.6, "LCD Display (CONOUT Details)."

LESCONT (at 0F2ABH) 01H byte Type: #
 - The initial value is 00H.
 - Indicates the number of ESC sequence parameters received.
 - See 3.6, "LCD Display (CONOUT Details)."

LESCPRM (at 0F2ACH) 0BH bytes Type: #
 - Holds ESC sequence receive parameters.
 - See 3.6, "LCD Display (CONOUT Details)."

LWORKBF (at 0F2B7H) 27H bytes Type: #
 - The 39 bytes of data starting at LSCADDR is exchanged with the 39 bytes of data in this area when the screen mode is changed.
 - Initially the system screen data is loaded in this area.
 - See 3.6, "LCD Display (CONOUT Details)."

LSCMODE (at 0F2DEH) 01H byte Type: #
 - The initial value is 01H.
 - Indicates the currently set screen mode.
 = 00H: System screen mode
 = 01H: User screen mode
 - See 3.6, "LCD Display (CONOUT Details)."

LLMARGIN (at 0F2DFH) 01H byte Type: #
 - The initial value is 05H.
 - Indicates the window left margin size.
 00H ≤ LLMARGIN ≤ 0AH
 - See 3.6, "LCD Display (CONOUT Details)."

LRMARGIN (at 0F2E0H) 01H byte Type: #
 - The initial value is 23H.
 - Indicates the window right margin size.
 1EH ≤ LRMARGIN ≤ 28H
 - See 3.6, "LCD Display (CONOUT Details)."

TAPMOD (at 0F2E1H) 01H byte Type: #
 - The initial value is 00H.
 - TAPMOD is the tape mode (mount/remove) flag.
 = 00H: Remove state
 = 01H: Mount state
 - See 3.7, "MTOS/MIOS Operations."

MCTDCD (at 0F2E2H) 01H byte Type: #
 - The initial value is 07H.
 - Indicates the MCT device code.
 - Used to check whether or not the drive specified in the FCB is an MCT.
 - See 3.7, "MTOS/MIOS Operations."

ROMCT (at 0F2E3H) 01H byte Type: #
 - The initial value is 00H.
 - Indicates the MCT drive R/O status.
 = 00H: R/W
 = 01H: R/O
 - See 3.7, "MTOS/MIOS Operations."