
EPC-8/8A BIOS settings for VMEbus CNC PS0691

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1. History	1
2. Introduction.....	1
2.1 Purpose.....	1
2.2 Scope.....	1
2.3 Definitions, Acronyms and Abbreviations	1
3. General Description.....	3
3.1 Entering the BIOS set-up function and moving around.....	3
3.2 BIOS settings	3
3.2.1 Main menu.....	4
3.2.1.1 IDE adapter 0 Master sub-menu.....	4
3.2.1.2 IDE adapter 1 Master sub-menu.....	5
3.2.1.3 Boot option sub-menu.....	5
3.2.1.4 Keyboard Features sub-menu	6
3.2.2 Advanced Menu	6
3.2.2.1 Integrated peripherals sub-menu.....	7
3.2.2.2 Memory Shadow sub-menu.....	7
3.2.3 EXM menu	7
3.2.4 VME Menu.....	8
3.2.5 Exit Menu	9
4. References.....	10

1. History

Date	Author	DCR	Change description
25-8-95	Walter Scheepens		First draft
2-12-95	Walter Scheepens		Settings for 80 MB hard disk added. 200 MB HD settings will follow
7-12-95	Walter Scheepens		200 MB HD BIOS settings added
6-3-96	Walter Scheepens		500 MB HD BIOS settings added. Formatted to only 285 Mbyte due to restrictions in the disk driver in the CNC SW
20-1-97	Walter Scheepens		500 MB HD now fully used. From Mill Plus/ CNC Pilot V311/00 no restrictions for HD size in disk driver
1-1-97	Walter Scheepens		1.4 GB HD BIOS settings added. Mill Plus/ CNC Pilot with C=20MB, D=1250MB (E=220MB Not formatted)
17-11-98	Ton Veldhoven		2.1 GB HD BIOS settings added. Mill Plus/CNC Pilot with C=20MB D=1900MB (E=241MB Not formatted)
12-02-02	Ton van der Heijden		6.0 GB HD BIOS settings added. Mill Plus/CNC Pilot with C=50MB, D=1900MB en E=1900MB. Hard disk formatted with upgraded format file (version2.0). Using this format file for formatting the previous HD's will also increase the C-drive from 20MB into 50MB
2-3-04	Ton van der Heijden		Option Byte 1 of EXM Slot 31 changed from [00] into [01]
20-10-04	Ton Veldhoven		Used Disk higher then 3Gbyte

2. Introduction

This document describes the EPC-8 BIOS settings required for the VMEbus CNC configurations. Since the EPC-8A is the successor of the EPC-8, everywhere in this document EPC-8 is written, also EPC-8A can be read.

2.1 Purpose

For a VMEbus system to function correctly, the BIOS settings must be set as described in this document. The BIOS settings can be changed using the built-in BIOS set-up function. BIOS setup is required:

1. During production (system assembly and software installation)
2. Replacement of a faulty EPC-8 (service)
3. After replacing a dead battery

2.2 Scope

BIOS setup is required for VMEbus CNC systems, V30X, V31X, V32X, V33X, V35X, V36X,

V37X, V40X, V41X and V42X. The BIOS setup menus are described for the EPC-8 BIOS from version 1.02.02.

2.3 Definitions, Acronyms and Abbreviations

BIOS	Basic I/O System.
DOS	Disk Operating System
ECP	Extended Capabilities Parallel port
EGA	Extended Graphics Adapter
IDE	Intelligent Drive Electronics
LBA	Logical Block Addressing
POST	Power On Self Test
ROR	VMEbus Release On Request
RONR	VXIbus Release On No Request
ULA	VXI Upper Logical Address register
VGA	Video Graphics Adapter
VME	Versa Module Euro-format
VXI	VMEbus eXtensions for Instrumentation

3. General Description

3.1 Entering the BIOS set-up function and moving around

To use the BIOS set-up function built-in the EPC-8, a PC keyboard must be connected to the EPC-8 front panel (Bottom connector, miniD).

The BIOS setup is activated when after resetting the system (reset push button on front panel of the EPC-8) or after power-on the "F2" key on the PC keyboard is depressed. The simplest way to do this is to reset and keep "F2" depressed until the BIOS set-up is activated.

The BIOS setup comes up with a blue and grey screen, where the user can move around using the cursor keys. The cursor left and right keys moves between the menu entries in the menu (the blue horizontal bar in the top of the screen), the cursor up and down move between the set-up variables on one page. The selected variable is highlighted. The variables can be changed by either hitting the space bare once or more times or by using the "+" and "-" keys. Numeric variables can be changed by typing the numeric value.

Some items are marked with a ►, which indicates that a sub-menu is hiding beneath this item. Hitting the Enter key when the cursor is moved on top of the item enters this sub-menu. Sub-menus can be left by pressing the Esc key.

The BIOS set-up is terminated by moving the cursor to EXIT in the main menu by using the cursor right keys or hitting the Esc key once or twice. On EXIT press Enter and again Enter when a message box pops up.

3.2 BIOS settings

The BIOS set-up main menu has 5 pages, which can be reached by moving the cursor left or right to the main menu entries, displayed on the horizontal menu bar: Main, Advanced, EXM, VME or Exit. The menus described below are valid for the BIOS versions from version 1.02.02. Older BIOS versions do not have all of the items shown below.

There are several VMEbus CNC hardware configurations, which will have a different BIOS setup setting. The configurations discussed here are:

1. CNC pilot 1250 and 1290 (without hard disk)
This configuration has an EPC-8 with an EXM2A memory extension module (EXM slot 0) and an EXM-8 ControlNet module (EXM slot 1)
2. CNC pilot 1290 (with 80 MB, 200 MB, 500 MB, 1.4 GB, 2.1 GB, 6 GB or 30 GB hard disk)
This configuration has an EPC-8 with an EXM-HD hard disk module (EXM slot 0) and an EXM-8 ControlNet module (EXM slot 1).
Note: The EPC-8A functions only in combination with an EXM-8A.
3. Manual Plus
This configuration has an EPC-8 only.

3.2.1 Main menu

The main menu has the following contents. The settings should be as shown. When not change the settings as described above.

RadiSys EPC-8

System Time:	[14:52:11]	<< <i>current time is shown here</i>
System Date:	[20/06/2001]	<< <i>current date is shown here</i>
Diskette A:	[Not installed]	
Diskette B:	[Not installed]	
▶ IDE adapter 0 Master:	(none)	<< <i>with a HD, this will show disk size</i> << <i>after submenu has been filled (Note)</i>
▶ IDE adapter 0 Slave:	(none)	
Video System:	EGA / VGA]	
▶ Boot sequence:	[C: only]	
▶ Numlock:	[Auto]	
System Memory	640 KB	
Extended Memory	7168 KB / 15360 / 31744 KB	

The BIOS setup items marked with ▶ lead to sub-menus when Enter is pressed and the cursor is placed on the item. These sub-menus are described in the following sub-sections. One can return to the main menu by depressing the Esc key.

Note : for BIOS versions <4.05, autotype detects the specifications for the 6.0 GB hard disk filled in according to 3.2.1.1 but displays the value 1712MB.

Therefore don't use autotype Fixed Disk.

3.2.1.1 IDE adapter 0 Master sub-menu

This sub-menu is selected when the enter is pressed with the cursor on "IDE adapter 0 Master". The following text is displayed. Shown are the settings as they should be for the various system configurations: The first table shows the settings for a system without hard disk. The second table depicts the settings for systems with hard disk with a size of 80MB, 200 MB, 500 MB, 1.4 GB, 2.1 GB 6 GB and 30 GB respectively.

*Flash disk (1250, 1290 no HD,
Manual Plus*

IDE adapter 0 Master

Autotype Fixed Disk	[Press Enter]
Type:	[none]
Cylinders:	
Heads:	
Sectors / Track:	
Write Precompensation:	

LBA Mode Control:	[Disabled]		
	<i>Hard disk 80 MB (1290 with HD)</i>	<i>Hard disk 200MB (1290 with HD)</i>	<i>Hard disk 500MB (1290 with HD) (Note1)</i>

IDE adapter 0 Master

Autotype Fixed Disk	[Press Enter]	[Press Enter]	[Press Enter]
Type:	[user]	[user]	[user]
Cylinders:	[966]	[723]	[1053] (Note1)
Heads:	[5]	[11]	[16]
Sectors / Track:	[34]	[63]	[63]
Write Precompensation:	[none]	[none]	[none]
LBA Mode Control:	[Disabled]	[Disabled]	[Disabled]

Note 1: Some 500 Mbyte hard disks have been formatted to 285 Mbyte due to limitations in the disk drive software in Mill Plus/CNC Pilot 1290 V310. These disks have the Cylinders parameter set to 550.

	<i>Hard disk 1.4 GB (1290 with HD) (Note 2)</i>	<i>Hard disk 2.1 GB (1290 with HD) (Note3)</i>	<i>Hard disk 6.0 GB (1290 with HD) (Note4)</i>
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IDE adapter 0 Master

Autotype Fixed Disk	[Press Enter]	[Press Enter]	[Press Enter]
Type:	[user]	[user]	[user]
Cylinders:	[2792]	[4188]	[12416]
Heads:	[16]	[16]	[15]
Sectors / Track:	[63]	[63]	[63]
Write Precompensation:	[none]	[none]	[none]
LBA Mode Control:	[Disabled]	[Disabled]	[Disabled]

*Hard disk 30 GB
(1290 with HD)
(Note5)*

IDE adapter 0 Master

Autotype Fixed Disk	[Press Enter]
Type:	[user]
Cylinders:	[6349]
Heads:	[16]
Sectors / Track:	[63]
Write Precompensation:	[none]

LBA Mode Control: [Enabled]

Note 2: 1.4 Gbyte hard disks have been formatted to 1270Mbyte (Drive C= 20MB and D= 1250MB).

Note 3: 2.1 Gbyte hard disks have been formatted to 1920Mbyte (Drive C= 20MB and D= 1900MB).

Note 4: 6.0 Gbyte hard disks have been formatted to 3276Mbyte (Drive C= 50MB and D= 1900MB).

Note 5: 30 Gbyte hard disks have been formatted to 3276Mbyte (Drive C= 50MB, and D= 1900MB).

Used the correct Setup flop Version 4.3 to formatted the disk (No E drive is formatted).

3.2.1.2 IDE adapter 1 Master sub-menu

This sub-menu is selected when the enter is pressed with the cursor on "IDE adapter 1 Master". The following text is displayed. Shown are the settings as they should be.

IDE adapter 1 Master

Autotype Fixed Disk [Press Enter]

Type: [none]

Cylinders:

Heads:

Sectors / Track:

Write Precompensation:

LBA Mode Control: [Disabled]

3.2.1.3 Boot option sub-menu

This sub-menu is selected when the enter is pressed with the cursor on "Boot Sequence". The following text is displayed. Shown are the settings as they should be.

Boot Options

Boot delay: [0]

Boot sequence: [C: only]

SETUP prompt: [Disabled]

POST errors: [Disabled]

Floppy Check: [Disabled]

Summary Screen: [Disabled]

3.2.1.4 Keyboard Features sub-menu

This sub-menu is selected when the enter is pressed with the cursor on "Numlock". The following text is displayed. Shown are the settings as they should be.

Keyboard Features

Numlock:	[Auto]
Key Click:	[Disabled]
Keyboard auto-repeat rate:	[30 / sec]
Keyboard auto-repeat delay:	[2 sec]

3.2.2 Advanced Menu

The Advanced menu has the following contents. The settings should be as shown. When not, change the settings using the procedure as described above. Two settings are shown: Column 1 for systems without hard disk and column 2 for systems with hard disk.

	<i>Flash disk (1250, 1290 no HD, Manual Plus</i>	<i>Hard disk (1290 with HD)</i>
RadiSys EPC-8		
▶ Integrated Peripherals		
▶ Memory Shadow		
Halt on Watchdog Timer:	[Disabled]	[Disabled]
Large Disk Access Mode:	[DOS]	[DOS]
Built-in BIOS Extension Configuration		
BIOS extension Addresses		
Flash ROMdisk:	[C800-CBFFh]	[Not Installed]
Serial Flash Recovery:	[CC00-CFFFh]	[Not Installed]
VME ROMdisk:	[Not Installed]	[Not Installed]
VME can Range:	[0 - FFF00000 A32]	[0 - FFF00000 A32]

There are two sub-menus in the Advanced menu. They can be entered by pressing Enter when the cursor is placed on the sub-menu selection line.

3.2.2.1 Integrated peripherals sub-menu

This sub-menu is selected when the enter is pressed with the cursor on "Integrated Peripherals". The following text is displayed. Shown are the settings as they should be.

Integrated Peripherals

COM1:	[3F8, IRQ4]
COM2:	[2F8, IRQ3]
LPT1:	[378, IRQ7]
ECP:	[Disabled]

3.2.2.2 Memory Shadow sub-menu

This sub-menu is selected when the enter is pressed with the cursor on "Memory Shadow". The following text is displayed. Shown are the settings as should be.

Memory Shadow

System Shadow	Enabled
Video Shadow	Enabled

Shadow Memory Regions:

C800 - CFFF:	[Disabled]
CC00 - CFFF:	[Disabled]
D000 - D3FF:	[Disabled]
D400 - D7FF:	[Disabled]
D800 - DBFF:	[Disabled]
DC00 - DFFF:	[Disabled]

3.2.3 EXM menu

The EXM menu is entered by pressing the right/left cursor keys until the cursor is on EXM in the menu bar. The following text is displayed. Shown are the settings for three CNC configurations: Column 1, with an EPC-8 and two EXM modules (in one VMEbus slot): EXM-8 (ControlNet) and EXM2A (SRAM/Flash expansion). Column 2 for configurations with an EXM-HD hard disk module instead of the SRAM/Flash expansion module. Column 3 for the Manual Plus configuration which has no EXM modules at all.

	<i>Flash disk (1250, 1290 no HD)</i>	<i>Hard disk (1290 with HD)</i>	<i>Flash disk (Manual Plus)</i>
RadiSys EPC-8			
EXM Slot 31			
ID:	[FD]	[FD]	[FD]
Option Byte 1:	[01]	[01]	[01]
Option Byte 2:	[00]	[00]	[00]
EXM Slot 0			
ID:	[FD]	[7D]	[FF]
Option Byte 1:	[00]	[05]	[00]
Option Byte 2:	[00]	[00]	[00]
EXM Slot 1			
ID:	[F7]	[F7]	[FF]
Option Byte 1:	[A1]	[A1]	[00]
Option Byte 2:	[11]	[11]	[00]
EXM Slot 2			
ID:	[FF]	[FF]	[FF]
Option Byte 1:	[00]	[00]	[00]
Option Byte 2:	[00]	[00]	[00]
EXM Slot 3			
ID:	[FF]	[FF]	[FF]
Option Byte 1:	[00]	[00]	[00]
Option Byte 2:	[00]	[00]	[00]
EXM Slot 4			
ID:	[FF]	[FF]	[FF]
Option Byte 1:	[00]	[00]	[00]
Option Byte 2:	[00]	[00]	[00]
EXM Slot 5			
ID:	[FF]	[FF]	[FF]
Option Byte 1:	[00]	[00]	[00]
Option Byte 2:	[00]	[00]	[00]

3.2.4 VME Menu

The VME menu is entered by pressing the right/left cursor keys until the cursor is on VME in the menu bar. The following text is displayed. Shown are the required settings.

RadiSys EPC-8

Arbitration Priority:	[0]
Arbitration Mode:	[Round Robin]
Bus Release:	[RONR (VXI)]
ULA:	[00]

3.2.5 Exit Menu

The Exit menu is entered by pressing the right/left cursor keys until the cursor is on EXIT in the menu bar. The following text is displayed. No variables are set here, but various modes can be selected

RadiSys EPC-8

- Save values and Exit
- Discard Values and Exit
- Get Default Values
- Load Previous Values
- Save Current values
- Exit & Update BIOS

Do not select the last menu item, unless you have an EXM disk unit with floppy disk drive in EXM slot 0 and a BIOS floppy.

4. References

1. EPC-8 Hardware Reference Manual. RadiSys.