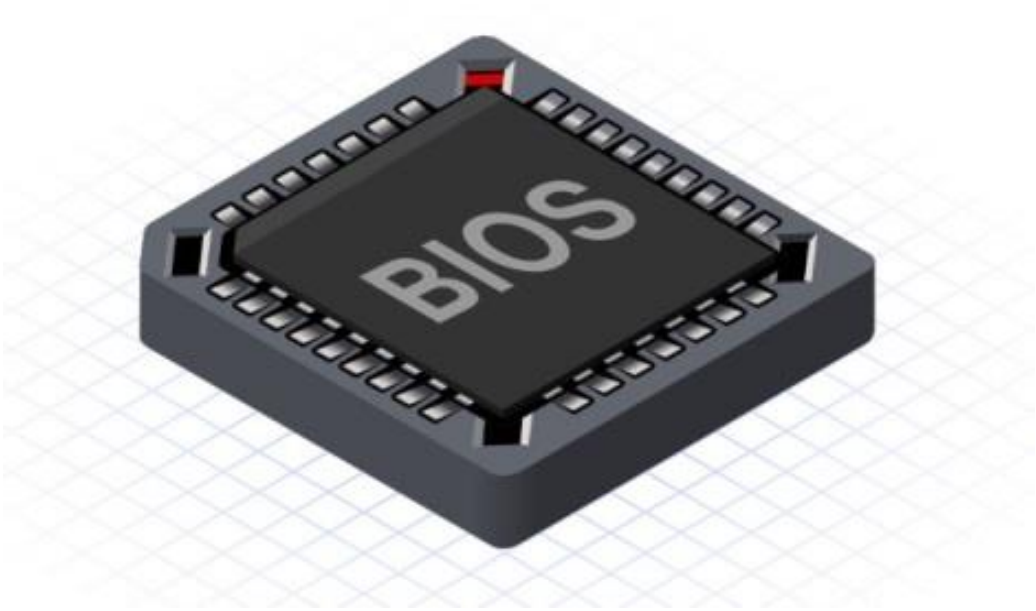
PHILIPS

SPD

MR computer BIOS (firmware) update



Contents

1 INTRODUCTION

1.1 Purpose of document

- This document gives you all the information required to install BIOS firmware on MR system computers.
- This document is intended for use by trained field service engineers.

1.2 Applies to

This document is applicable to these computers:

• W6000 • W8000	• XW6000 • XW8000 • XW6200 • XW6400 • XW6600 • XW8200 • XW8400 • XW8600	• Z400 • Z600 • Z420 • Z230 • Z440 • Z240	• RP5810

1.3 Document history

Revision	Reason for changes
Rev 15 (Oct-2016)	- Update to use new document template - New BIOS V02.26 for Z440
Rev 16 (Oct-2016)	- New BIOS V02.26 for RP5810
Rev 17 (Nov-2016)	- New BIOS V02.29 for Z440 - Clerical correction Z420 procedure
Rev 18 (Jan-2017)	- New BIOS V02.31 for Z440 - Typo corrected in Z440 BIOS Settings Load Procedure
Rev 19 (May-2017)	- New BIOS V02.32 for Z440 - Clerical: workaround for SCC Z230/Z240 BIOS version short display time added.
Rev 20 (June-2017)	- New BIOS V02.34 for Z440
Rev 21 (August-2017)	- Update of Z440 BIOS Settings Load Procedure from USB Stick

2 OVERVIEW LATEST BIOS FIRMWARE VERSIONS

Overview Latest BIOS Firmware Versions of HostRecon, Host, Reconstructor and Scan Control Computers		
Host Computer	W8000	1.29
Host Computer	XW8000	2.00
Host Computer	XW8200	3.08
Host Computer	XW8400	2.26
Host Computer	XW8600	1.35
Host Computer	Z400	3.54
Host Computer	Z420	3.88
Host Computer	Z440	2.34
Reconstructor	W6000	1.29
Reconstructor	XW6000	1.22
Reconstructor	XW6200	3.08
Reconstructor	XW6400	2.26
Reconstructor	XW6600	1.35
Reconstructor	Z400	3.54
Reconstructor	Z600	3.54
Reconstructor	Z420	3.88
Reconstructor	Z440	2.34
HostRecon	Z420	3.88
HostRecon	Z440	2.34
Scan Control Computer (SCC)	Z230	1.18
Scan Control Computer (SCC)	Z240	1.27
DVD PC-5	RP5810	2.26

3 CREATE BOOTABLE FIRMWARE FLOPPY FOR (X)W6000, (X)W8000, XW6200, XW8200

Procedure how to create a bootable Firmware floppy
Applies to: (X)W6000, (X)W8000, XW6200, XW8200

1. Download the required Firmware from InCenter , (MR Downloads > MR Computer Firmware).
2. Copy the firmware file to a folder on your local hard disk (e.g. C:\data\firmware).
3. Unzip and extract the file to the location of the other files.
4. Insert an empty formatted floppy disk in the floppy drive.
5. Select: START (Windows START button).
6. Select: RUN.
7. Enter: `COMMAND.COM` or `CMD` (A DOS window will be opened).
8. Enter:
   `CD C:\data\firmware` <Enter>
   `diskimag XW8117.IMG A:` <Enter>
   (this is an example; be sure to enter exact the same file name and you must be in the newly created directory to run diskimag; `<SOURCE>\<FILENAME.img>` `<DESTINATION>`).
9. Label the floppy disk and the floppy is ready for use.

4 FIRMWARE UPDATE W8000 AND (X)W6000

Firmware installation procedure for Host Computer W8000 and Reconstructor (X)W6000 series

1. Insert the bootable Firmware floppy disk into the floppy drive.
2. Switch on the computer.
3. Press <**Enter**> to continue after:
   The '**Welcome to ROMPAQ**' window.
4. Select **HP System BIOS**, press <**Enter**> to continue.
5. Select the latest version and press <**Enter**> to continue.
6. Press <**Enter**>, if necessary, after the message appears:
   Do you still want to reprogram your firmware with this image?
7. Press <**Enter**> after the message:
   A backup image of your current system ROM has been created.
8. Press <**Enter**> after the message:
   If you continue, your firmware will be reprogrammed.
9. Press < **Enter** > to continue after the message:
   The system ROM has been successfully reprogrammed.
10. Press <**Es**c> after the message:
    Do you want to reprogram another device?
11. Switch the computer off and on again. Leave the floppy inside the floppy drive.
12. Press <**F10**> during the boot of the computer. **Setup** will appear in the lower right corner of the startup screen.
13. Select **English** as the default language and press <**Enter**>.
14. Select **Set Time and Date** in the **File** menu. Press <**Enter**> to continue. Verify if the time and date settings are correct.
15. Press <**F10**> for acceptation of the settings as displayed.
16. Select **Restore from Diskette** in the file menu. Press <**Enter**> to continue.
17. Press <**F10**> after the message:
    Please insert a Save/Restore diskette into drive A:
18. Press <**Enter**> after the message:
    Save/Restore was successful:
19. Select **Save Changes and Exit** in the **File** menu and press <**Enter**>.
20. Switch the computer off and remove the floppy disk.

CAUTION

Do not turn off power or attempt to reboot the computer during the update process.

For Intera BDAS systems (SW Release R10.x and R11.x) the boot order from the Reconstuctor XW6000 and XW62000 must be changed after the firmware update. Make sure that the Reconstructor boot order is the following:

1.	Diskette Drive (A:)	First
2.	IDE CD-ROM Drive	Second
3.	Hard Drive (C:)	Third
4.	Network controller	Fourth
5.	USB Device	Fifth

This will prevent communication problems with the host computer.
Procedure:

1. Switch on the Reconstructor (floppy disk must be removed) and press <**F10**> to enter the setup menu.
2. Select the **Storage** tab; **Boot Order** and change the list as above.

5 FIRMWARE UPDATE XW8000

Firmware installation procedure Host Computer XW8000

1. Shut down the computer and insert the floppy disk containing the Firmware.
2. Put the newly created floppy disk in the A: drive of the computer to be upgraded or restored and cycle system power to boot from the Firmware floppy disk.
3. Select option **A Flash BIOS to update the Firmware** (Firmware level JQW200US.WPH).

CAUTION

Do not turn off power or attempt to reboot the computer during the update process.

4. Wait till the audible sound and press any key.
5. The computer will now reboot and it will boot from floppy.
6. Select option **B Exit without Flashing**.
7. Then type: `bset16 -w bios.bin`
8. Remove the floppy from the system and reboot the computer.

6 FIRMWARE UPDATE XW8200 AND XW6200

Firmware installation procedure Host Computer XW8200 and Reconstructor XW6200

1. Insert the Firmware Update floppy disk into the floppy drive.
2. Switch on the computer.
3. After: '**Welcome to ROMPAQ**' window, press <**Enter**> to continue.
4. Select **HP System BIOS**, press <**Enter**> to continue.
5. Select the latest version, press <**Enter**> to continue.
6. After the next message: "**Do you still want to reprogram your firmware with this image?**", if applicable, press <**Enter**>.
7. After the message: "**A backup image of your current system ROM has been created**", press <**Enter**>.
8. After the message: "**If you continue, your firmware will be reprogrammed**", press <**Enter**>.
9. After the message: "**The system ROM has been successfully reprogrammed**", press <**Enter**>.
10. After the message: "**Do you want to reprogram another device?**", press <**Esc**>.
11. Switch the computer off and on. LEAVE THE FLOPPY INSIDE THE FLOPPY DRIVE.
12. Press <**F10**> during the boot of the computer. "**Setup**" will appear in the lower right corner of the startup screen.
13. Select **English** as the default language, press <**Enter**>.
14. Select **Set Time and Date** in the **File** menu, press <**Enter**> to continue.
15. Verify if the time and date settings and correct if applicable, press <**F10**> to confirm.
16. Select **Restore from Diskette** in the file menu, press <**Enter**> and <**F10**> to continue.

CAUTION

DO NOT select "**Save to Diskette**". If you do select this it will overwrite your BIOS settings from the file 'CPQSETUP.txt', and the original content on your Diskette will be lost.

17. When the BIOS settings are loaded, the system will show a green box with a message on the screen: "**Save/Restore was successful**", press <**any key**> to continue.
18. Exit the BIOS via "**Save Changes and Exit**", press <**Enter**>.
19. Press <**F10**> to confirm saving the changes.
    - The workstation will reboot automatically.
20. If the text "**v03.08**",and "**Philips Medical Host S02 (2007-08-23)**" for the host is displayed on the screen like the adjacent figure, then the PMS-MR BIOS settings are loaded successfully.

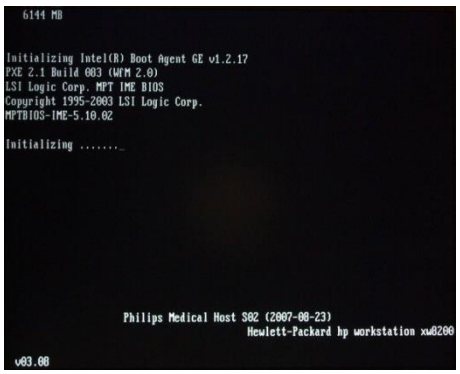


Figure 1 – XW8200

21. Switch the computer off and remove the floppy disk.

CAUTION

Do not turn off power or attempt to reboot the computer during the update process.

With the Intera BDAS systems (SW Release R10.x and R11.x) the boot order from the Reconstuctor XW6000 and XW62000 must be changed after the firmware update. Make sure that the Reconstructor boot order is the following:

1. Diskette Drive (A:) First
2. IDE CD-ROM Drive Second
3. Hard Drive (C:) Third
4. Network controller Fourth
5. USB Device Fifth

This will prevent communication problems with the host computer.

Procedure:

1. Switch on the Reconstructor (floppy disk must be removed) and press <**F10**> to enter the setup menu.
2. Select the **Storage** tab; **Boot Order** and change the list as above.

7 FIRMWARE UPDATE XW8400 AND XW6400

Firmware installation procedure Host Computer XW8400 and Reconstructor XW6400

Loading procedure for new firmware:

1. Download the firmware from InCenter , (MR Downloads > MR Computer Firmware).
2. Unzip the two files and store them **in the root** of a USB-stick (FAT32 file system). DO NOT store the firmware files in a folder on the USB-stick.
3. Insert USB-stick with the downloaded firmware into the Host computer XW8400, or the Reconstructor XW6400.
4. Switch on the computer.
5. Press the <**F10**> key during booting.
6. Select **English**, then press <**Enter**> to continue.
7. Select **Flash System ROM** from the file tab, then press <**Enter**> to continue.
8. Select **USB**, then press <**F10**> to continue.
9. Select **xx.BIN** file, then press <**F10**> to continue.
10. After message "**Are you sure you want to Flash system ROM**", press <**F10**> to continue.
11. After message "**System ROM Flash was successful**", press <**any key**> to continue.
12. Leave the BIOS via "**Save Changes and Exit**", press <**Enter**> to continue and press <**F10**> to confirm, the system will reboot automatically.

Load the BIOS setting:

13. Access the BIOS for loading the BIOS settings. During the POST press <**F10**>.
14. Select **English**, then press <**Enter**>.
15. In tab **File** select **Default Setup**, then press <**Enter**>.
16. Select "**Restore Factory Settings as Default**", then press <**F10**>.
17. <**Press any key to continue**>.
18. In tab **File** select **Apply Defaults and Exit**, then press <**Enter**>. Press <**F10**> to confirm.

    Result:

    - All BIOS parameters and their values are set to factory settings as default.
    - The workstation will reboot automatically.
19. Press <**F10**> to access the System BIOS.
20. Select **English**, then press <**Enter**>.
21. In tab **File**, select **Replicated Setup**, then press <**Enter**>.
22. Select **Restore from removable Media**, then press <**F10**>.

CAUTION

DO NOT select "**Save to Removable media**". If you do select this it will overwrite your BIOS settings from the file 'CPQSETUP.txt', and the original content on your USB-stick will be lost.

23. Select **USB**, then press <**F10**>.
    - The computer now puts the settings from the USB-stick in to the system BIOS.
    - When the BIOS settings are loaded, the system will show a green box with a message on the screen: "**Save/Restore was successful. Press any key to continue.**"
24. Exit the BIOS by selecting "**Save Changes and Exit**", then press <**Enter**>.
25. Press <**F10**> to confirm saving the changes.

– The workstation will reboot automatically.

26. The PMS-MR BIOS settings are loaded successfully when the text that follows is displayed on screen:

- For the host: "**v02.26**", "**Philips Medical Host xw8400 S03 (2008-11-25)**", and "**HP xw8400 Workstation**". See Figure 2.

Figure 2 – XW8400

-or-

- For the Reconstructor: "**v02.26**", "**Philips Medical Reconstructor (17/08/2007)**", and "**HP xw6400 Workstation**". See Figure 3.

Figure 3 – XW6400

NOTE

Figure 2 and Figure 3 are examples showing **v02.24** in lower-left corner.

27. **Repeat steps 19 thru 26 a second time**. Only after loading the BIOS settings for the second time, the specific desired BIOS settings are then set correctly.

8 FIRMWARE UPDATE XW8600 AND XW6600

Firmware installation procedure for XW8600 Host computer and Reconstructor XW6600

Loading procedure for new firmware:

1. Download the firmware from InCenter , (MR Downloads > MR Computer Firmware).
2. Unzip the two files and store them **in the root** of a USB-stick (FAT32 file system). DO NOT store the firmware files in a folder on the USB-stick.
3. Insert the USB-stick with the downloaded firmware into the Reconstructor XW6600, or the Host computer XW8600, (connect a monitor and a keyboard to the XW6600 Reconstructor).
4. Switch on the computer (Power cycle).
5. Press the <**F10**> key during booting.
6. Language can be set by pressing <**F8**>, and then selecting **English**. Press <**Enter**> to continue.
7. In the **File** tab, select **Flash System ROM**. Press <**Enter**> to continue.
8. Select **USB**, then press <**F10**> to continue.
9. Select **xx.BIN** file, then press <**F10**> to continue.
10. After message "**Are you sure you want to Flash system ROM**" press <**F10**> to continue.
11. After message "**System ROM Flash was successful**", press <**any key**> to continue.
12. Leave the BIOS via "**Save Changes and Exit**", press <**Enter**> to continue.
    - The system will reboot automatically.

Load the BIOS setting:

13. Access the BIOS for loading the BIOS settings. During the POST press <**F10**>.
14. Language can be set by pressing <**F8**> and then selecting **English**. Press <**Enter**> to continue.
15. In the **File** tab, select **Default Setup**, then press <**Enter**>.
16. Select **Restore Factory Settings as Default**, then press <**F10**>.
17. <**Press any key to continue**>
18. In the **File** tab, select **Apply Defaults and Exit**, then press <**Enter**>. Press <**F10**> to confirm.

    Result:
    - All BIOS parameters and their values are set to factory settings as default.
    - The workstation will reboot automatically.
19. Press <**F10**> to access the System BIOS.
20. Select **English**, then press <**Enter**>.
21. In the **File** tab, select **Replicated Setup**, then press <**Enter**>.
22. Select **Restore from removable Media**, then press <**F10**>.

CAUTION

DO NOT select "**Save to Removable media**". If you do select this it will overwrite your BIOS settings from the file 'CPQSETUP.txt', and the original content on your USB-stick will be lost.

23. Select **USB**, then press <**F10**>.
    - The computer now puts the settings from the USB memory stick in the system BIOS
    - When the BIOS settings are loaded, the system will show a green box with a message on the screen: "**Save/Restore was successful. Press any key to continue.**"
24. Exit the BIOS by selecting **Save Changes and Exit**, then press <**Enter**>.
25. Press <**F10**> to confirm saving the changes
    - The workstation will reboot automatically

26. Check the version in lower-left corner of screen:

- *For the XW6600 Reconstructor:*
  If the text "**v01.35**", and "**Philips Medical Recon S01 (2008-01-18)**", and "**HP xw6600 Workstation**" is displayed on screen the PMS-MR BIOS settings are loaded successfully. See the adjacent figure.

- *For the XW8600 Host computer:*
  If the text "**v01.35**", and "**Philips Medical Host S01 (2007-11-19)**", and "**HP xw8600 Workstation**" is displayed on screen the PMS-MR BIOS settings are loaded successfully. See the adjacent figure.

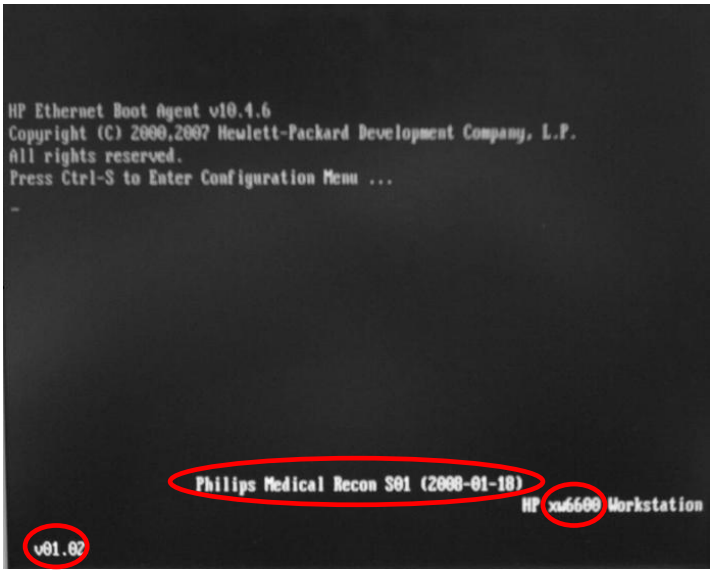


Figure 4 – Example XW6600

NOTE

Figure 4 shows an example with v01.02 in the lower-left corner for the XW6600.

27. **Repeat steps 19 thru 26 a second time**. Only after loading the BIOS settings for the second time, the specific desired BIOS settings are then set correctly.

9 FIRMWARE UPDATE Z400 AND Z600

Firmware Installation procedure for Z400 Host computer and Reconstructor Z400 and Z600

Installing firmware from USB stick:

1. Download the firmware from InCenter , (MR Downloads > MR Computer Firmware).
2. Unzip the two files and store them **in the root** of a USB-stick (FAT32 file system). DO NOT store the firmware files in a folder on the USB-stick.
3. Insert the USB-stick with the downloaded firmware in the computer.
4. Power up the workstation.
5. Press <**F10**> when the current system BIOS version is displayed:

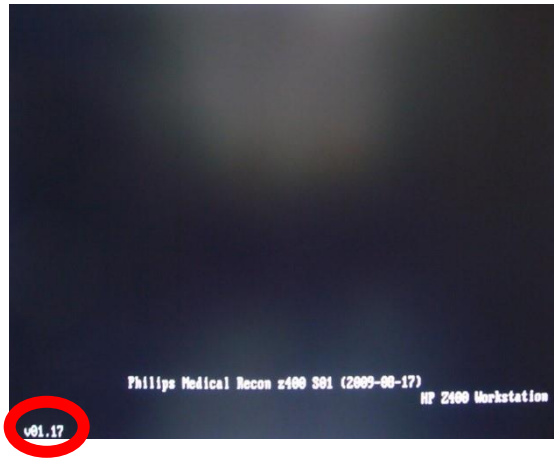


Figure 5 – System BIOS level displayed

6. Language can be set by pressing <**F8**> and selecting **English**. Press <**Enter**> to continue.
7. In the **File** tab, select **Flash System ROM**. Press <**Enter**> to continue.
8. Select **USB**, then press <**F10**> to continue.
9. Select **xx.BIN** file, then press <**F10**> to continue.
10. After message "**Are you sure you want to Flash system ROM**" press <**F10**> to continue.

CAUTION
Do not turn off power or attempt to reboot the computer during the update process.

11. After message "**System ROM Flash was successful the system will now reboot**", press <**any key**> to continue.
    - The system will reboot.

BIOS settings loading procedure:
The BIOS settings can be restored from an USB-stick (FAT32 file system). See previous section for creating the USB stick with the correct BIOS settings file. Put this USB stick in an USB slot of the workstation and power on the workstation.

1. During the POST, press <**F10**> to access the BIOS of the computer for loading the BIOS settings.
2. Press <**F8**> and select **English**, then press <**Enter**>.
3. In the **File** tab, select **Default Setup** and then press <**Enter**>.
4. Select **Restore Factory Settings as Default**, then press <**F10**>.
5. The system will show a green box with a message on the screen: "**Default Setup was successful. Apply Defaults to activate**". Press <**any key**> to continue.
6. In the **File** tab, select **Apply Defaults and Exit**, and then press <**Enter**>.

7. Press <F10>.

   Result:

   – All BIOS parameters and their values are set to factory settings as default.

   – The workstation will reboot automatically.

8. Press <**F10**> to access the System BIOS.
9. Select **English**, then press <**Enter**>.
10. In the **File** tab, select **Replicated Setup**, then press <**Enter**>.

CAUTION

DO NOT select "**Save to Removable media**". If you do select this it will overwrite your BIOS settings from the file 'CPQSETUP.txt', and the original content on your USB-stick will be lost.

11. Select **Restore from removable Media**, then press <**F10**>.
12. Select **USB** and press <**F10**>.

    – The computer now puts the settings from the USB memory stick in the system BIOS.

    – When the BIOS settings are loaded, the system will show a green box with a message on the screen: "**Save/Restore was successful. Press <any key> to continue.**"

13. Exit the BIOS via **Save Changes and Exit**, and then press <**Enter**>.
14. Press <**F10**> to confirm saving the changes.

    – The workstation will reboot automatically.

15. Check the version in the left hand lower corner of the screen:

- *For the Z400 Host computer:*
  If the text "**v03.20**", "**Philips Medical Host Z400 S03 (2010-05-06)**", and "**HP Z400 Workstation**" is displayed on the screen then the PMS-MR BIOS settings are loaded successfully. See the adjacent figure.
- For the Z400 Reconstructor:
  If the sentences "**v03.20**", "**Philips Medical Recon Z400 S02 (2010-04-19)**", and "**HP Z400 Workstation**" is displayed on the screen then the PMS-MR BIOS settings are loaded successfully. See the adjacent figure.
- For the Z600 Reconstructor:
  If the sentences "**v03.13**", "**Philips Medical Recon Z600 S02 (2010-04-22)**", and "**HP Z600 Workstation**" is displayed on the screen then the PMS-MR BIOS settings are loaded successfully. See the adjacent figure

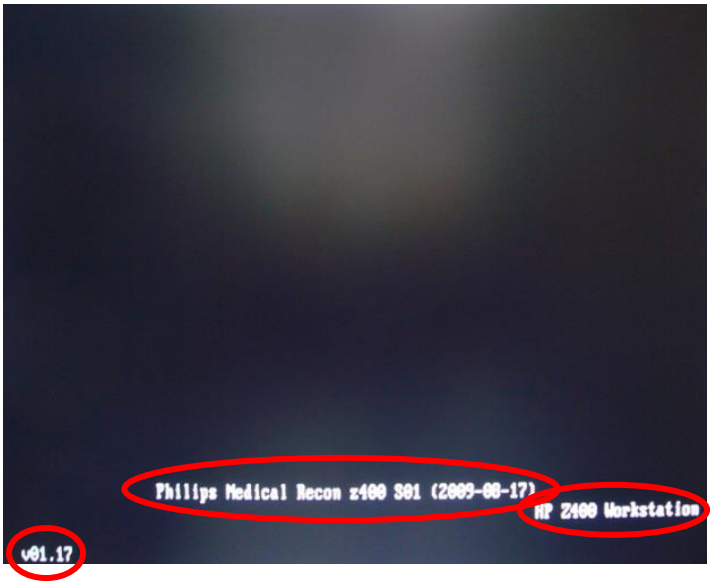


Figure 6 – PH-MR BIOS settings are loaded successfully

NOTE

The Setting version (Sxy) and date (yyyy-mm-dd) are introduced for the following purposes:

- To identify the current- and new BIOS update;
- To identify the current- vs. new System BIOS settings and its load procedure.

10 FIRMWARE UPDATE Z420 – HDD/SSD ENCRYPTION

Firmware installation procedure for Z420 Host, Z420 Reconstructor, and Z420 HostRecon

10.1 Introduction

BIOS version “v03.88” is introduced for the Z420 Host, Z420 Reconstructor and Z420 HostRecon which supersedes previous versions v03.52, v03.15 and v02.08.

Patient data protection using bit-locker:
From R5.1.1 onwards it is possible to apply a so called *bit-locker* BIOS to the Host computer and the HostRecon computer allowing HDD or SSD encryption (partitions C: D: E: G:).
This *bit-locker* BIOS contains a default password (Philips) that can be modified. Once *bit-locker* is activated the BIOS enables the TPM (Trusted Platform Module chip) of the computer, a security solution based on both hardware + software. With the *bit-locker* BIOS loaded the HDD or SSD can be encrypted if requested by the customer.

NOTE

HDD encryption via bit-locker BIOS on a R4.x Host is not supported.

In case the Z420 Host or HostRecon computer needs to be removed from the site one can protect all data (patient data!) on the computer by entering Setup and resetting the BIOS to the factory default settings.

Versions:
Following BIOS versions “v03.88” can be downloaded from InCenter (see also table below):

- Host ‘normal’ version
- Host ‘*bit-locker*’ version
- Recon version
- HostRecon ‘normal’ version
- HostRecon ‘*bit-locker*’ version

Host and HostRecon computers are shipped from the factory with the ‘normal’ BIOS version installed.

Release	Encryption	Computer	BIOS file
R4.x	N.A.	Z420 Host	DMR176054_04_132S_z420_Host_BIOS_v3_88.zip
R4.x	N.A.	Z420 Recon	DMR159145_04_132S_z420_Recon_BIOS_v3_88.zip
R5.x	N	Z420 Host	DMR176054_04_132S_z420_Host_BIOS_v3_88.zip
R5.x	Y	Z420 Host	DMR168311_04_132S_z420_Host_BIOS_v3_88_Bitlocker.zip
R5.x	N.A.	Z420 Recon	DMR159145_04_132S_z420_Recon_BIOS_v3_88.zip
R5.x / (China R4.1.9)	N	Z420 HostRecon	DMR205555_01_132S_z420_HostRecon_BIOS_v3_88.zip
R5.x / (China R4.1.9)	Y	Z420 HostRecon	DMR205559_01_132S_z420_HostRecon_BIOS_bitlock_v3_88.zip

10.2 Installing firmware from USB stick

1. Download the firmware (either normal or *bit-locker*) from InCenter , (MR Downloads > MR Computer Firmware).
2. Unzip the two files and store them **in the root** of a USB-stick (FAT32 file system). DO NOT store the firmware files in a folder on the USB-stick.
3. Insert the USB-stick with the downloaded firmware in the computer.
4. Power up the workstation.
5. Press <**F10**> when the current system BIOS version is displayed:

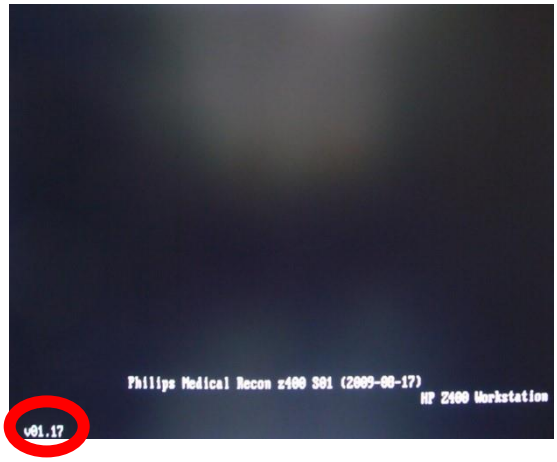


Figure 7 – System BIOS version displayed

6. Language can be set by pressing <**F8**> and selecting **English**. Press <**Enter**> to continue.
7. In the **File** tab, select **Flash System ROM**. Press <**Enter**> to continue.
8. Select **USB**, then press <**Enter**> to continue.
9. Select **xx.BIN** file, then press <**Enter**> to continue.
10. After message "**Are you sure you want to Flash system ROM**" press <**Enter**> to continue.

CAUTION	
	Do not turn off power or attempt to reboot the computer during the update process.

11. After message "**System ROM Flash was successful the system will now reboot**", press <**any key**> to continue.
    - The system will reboot.

10.3 BIOS Settings Load Procedure

The BIOS settings can be restored from a USB stick. See above how to create the USB stick with the correct BIOS settings file. Put this USB stick in a USB slot of the workstation and reboot or power on this workstation.

1. During the POST (Power On Self Test), press <**F10**> to access the BIOS of the computer for loading the BIOS settings.
2. Press <**F8**> and select **English**, then press <**Enter**>.
3. In the **File** tab, select **Default Setup** and then press <**Enter**>.
4. Select **Restore Factory Settings as Default**, then press <**Enter**>.
    - The system will show a green box with a message on the screen: "**Default Setup was successful**".
5. Press <**Enter**>.
6. Press <**Esc**>.

7. In the **File** tab, select **Apply Defaults and Exit**, and then press <**Enter**>.
8. Press <**Enter**>.

   Result:

   – All BIOS parameters and their values are set to factory settings as default.

   – The workstation will reboot automatically.
9. Press <**F10**> to access the System BIOS. Enter Password 'Philips' (default) to enter the BIOS settings for HostRecon computer only.
10. Select **English**, then press <**Enter**>.
11. In the **File** tab, select **Replicated Setup**, then press <**Enter**>.

CAUTION

DO NOT select "**Save to Removable media**". If you do select this it will overwrite your BIOS settings from the file 'CPQSETUP.txt', and the original content on your USB-stick will be lost.

12. Select **Restore from Removable Storage Device**, then press <**Enter**>.
    When the BIOS Settings are loaded, the system will show a blue box with a message on the screen:
    - "**Save/Restore was successful. Press any key to continue**"
    - Press <**Enter**>
13. Exit the BIOS via **Save Changes and Exit**, and then press <**Enter**>.
14. Press <**Enter**> to confirm saving the changes.

    – The workstation will reboot automatically.
15. When Bit-locker BIOS is loaded an additional question may be asked if the TPM may be activated. Confirm with <**F1**>.
16. The BIOS version (vXX.XX) loaded is displayed in the lower left hand corner of the screen. Depending on computer type and the BIOS version, the following is displayed at the bottom of the screen (similar to the figure) when the PMS-MR BIOS settings are loaded successfully:

    - For the Z420 Host computer 'normal': "**Philips Healthcare MR HOST z420 R06 (8-Jan-2016)**".
    - For the Z420 Host computer with Bit-locker: "**Philips Healthcare MR HOST z420 BITLOCKER R06 (8-Jan-2016)**".
    - For the Z420 Reconstructor: "**Philips Healthcare MR RECON z420 R04 (8-Jan-2016)**".
    - For the Z420 HostRecon computer 'normal': "**PHILIPS HC MR HOST z420 R07 (08-Jan-2016)**"
    - For the Z420 HostRecon computer with Bit-locker: "**Philips HC MR HOST z420 BITLOCKER R07 (08-Jan-2016)**"

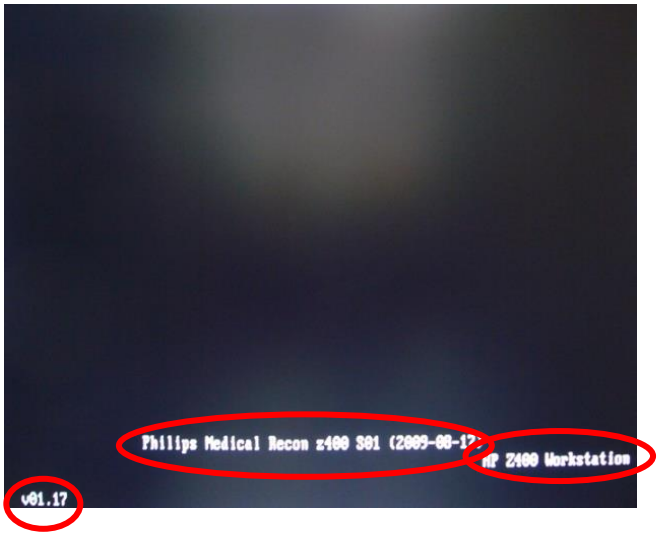


Figure 8 – PH-MR BIOS settings are loaded successfully

17. Remove the USB memory stick.

10.4 Enable/disable hard disk encryption

After the Bit-locker BIOS is loaded the encryption can be enabled with this procedure:

1. Logon as MRService user.
2. Open a command window.
3. Type: **`prepare_bitlocker`**

   Drive F will be made the active drive.

   Do you want to continue? <Y/N>: **Y**

   Reboot follows.
4. Logon as MRService user.
5. Open a command window.
6. Type: **`activate_bitlocker`**

   – The system will start encrypting the partitions.

   – Extra reboot is required on 'new' Bitlocker systems because the OS takes ownership of the TPM. This must be confirmed via <**F1**>.

   – Be patient; the process can take over 60 minutes to finish the encryption.

To disable the encryption, follow this procedure:

1. Logon as MRService user.
2. Open a command window.
3. Type: **`deactivate_bitlocker`**

   – System will start undoing the encryption.

   – DO NOT reboot the computer during this process, since it would block access to the database partition.

Before computer shipment with data protection do the following:

1. Shutdown and restart the computer.
2. At restart select <**F10**> to enter the Computer Setup.
3. Select: **Security** > **System Security**.
4. Select: **Reset BIOS to factory defaults**.
5. Select: <**F10**> to accept
6. Select: **File** > **Save** the settings and exit.
7. Switch off the computer (is ready for shipment).

11 FIRMWARE UPDATE Z230

Firmware Installation procedure for Z230 Scan Control Computer (DDAS)

11.1 Introduction

For the Z230 Scan Control Computer (SCC) BIOS firmware version “v01.18 (2014-02-28)” is introduced. The procedures below show how to install:

- BIOS firmware version
- Philips BIOS settings

After computer boot up the BIOS firmware version is shown is the left bottom corner of the screen while the version of the BIOS settings is shown at center bottom of the screen.

To verify if the BIOS settings have been updated you may compare the version displayed on screen with the “Enter Ownership Tag” in CPQSETUP.txt as present in the BIOS zip file downloaded from InCenter (example: “Philips HC MR SCC Z230 R02 2016Sep23”).

11.2 Installing BIOS firmware from USB stick

1. Download the firmware from InCenter , (MR Downloads > MR Computer Firmware).
2. Unzip the two files and store them **in the root** of a USB-stick (FAT32 file system). DO NOT store the firmware files in a folder on the USB-stick.
3. Insert the USB-stick with the downloaded firmware in the computer.
4. Power up the workstation.
5. Press <**F10**> to display the current system BIOS version.

   If display time of BIOS version is too short:
   Press <**F10**> during power-recycle and enter BIOS setup to check BIOS Version in the system Information Menu.

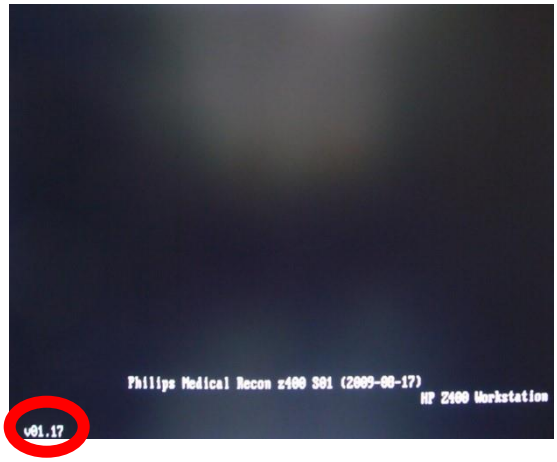


Figure 9 – System BIOS version displayed

6. Language can be set by pressing <**F8**> and selecting **English**. Press <**Enter**> to continue.
7. In the **File** tab, select **Flash System ROM**. Press <**Enter**> to continue.
8. Select **USB**, then press <**F10**> to continue.
9. Select **xx.BIN** file, then press <**Enter**> to continue.
10. After message “**Are you sure you want to Flash system ROM**” press <**OK**> to continue.

CAUTION
Do not turn off power or attempt to reboot the computer during the update process.

11. After message “**System ROM Flash was successful the system will now reboot**”, press <**any key**> to continue.
    - The system will reboot.

11.3 BIOS Settings Load Procedure

The BIOS settings can be restored from a USB stick. See previous section for instructions on how to create the USB stick with the correct BIOS settings file. Put this USB stick in a USB slot of the workstation and reboot or power on this workstation.

1. During the POST (Power On Self Test), press <**F10**> to access the BIOS of the computer for loading the BIOS settings.
2. Press <**F8**> and select **English**, then press <**Enter**>.
3. In the **File** tab, select **Default Setup** and then press <**Enter**>.
4. Select **Restore Factory Settings as Default**, then press <**Enter**>.
   - The system will show a green box with a message on the screen: "**Default Setup was successful Apply Defaults to activate**". Press <**any key**> to continue."
5. In the **File** tab, select **Apply Defaults and Exit**, and then press <**Enter**>.
6. Press <**F10**>.

   Result:

   - All BIOS parameters and their values are set to factory settings as default.
   - The workstation will reboot automatically.
7. Press <**F10**> to access the System BIOS. Enter password 'Philips' (default) to enter the BIOS settings.
8. Select **English**, then press <**Enter**>.
9. In the **File** tab, select **Replicated Setup**, then press <**Enter**>.

CAUTION

DO NOT select "**Save to Removable media**". If you do select this it will overwrite your BIOS settings from the file 'CPQSETUP.txt', and the original content on your USB-stick will be lost.

10. Select **Restore from removable Media**, then press <**F10**>.
    - When the BIOS settings are loaded, the system will show a blue box with a message on the screen: "**Save/Restore was successful.**
      Press <any key> to continue."
11. Exit the BIOS via **Save Changes and Exit**, and then press <**Enter**>.
12. Press <**F10**> to confirm saving the changes.
    - The workstation will reboot automatically.
13. Check the version displayed in the lower-center of the screen. If the sentence "**Philips HC MR SCC Z230 R02 2016Sep23**" is displayed the PMS-MR BIOS settings are loaded successfully.

NOTE

The Setting version (Sxy) and date (yyyy-mm-dd) are introduced for the following purposes:

- To identify the current- and new BIOS update;
- To identify the current- vs. new System BIOS settings and its load procedure.

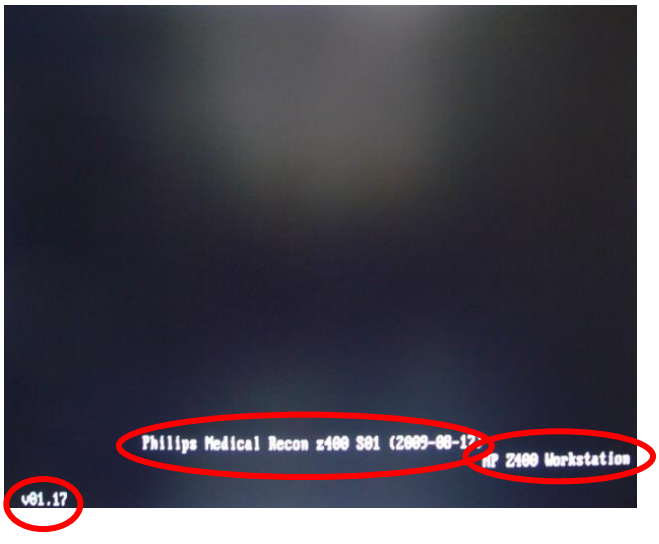


Figure 10 – PH-MR BIOS settings are loaded successfully

12 FIRMWARE UPDATE Z440 – SSD ENCRYPTION

Firmware installation procedure for Z440 Host, Z440 Reconstructor, and Z440 HostRecon

12.1 Introduction

- For the Z440 HostRecon and Z440 Host a BIOS version "V02.34 (02Jun2015)" is introduced.
- For the Z440 Reconstructor a BIOS version "V02.34 (04Jun2015)" is introduced.

From R5.1.1 onwards it is possible to apply a so called *bit-locker* BIOS to the HostRecon computer and the Host computer allowing SSD encryption (System disk and Data disk partitions C: D: E: G:).
The Z440 computer BIOS Setup Utility is protected through a password (Philips123) which can be modified.

Once *bit-locker* is activated the BIOS enables the TPM (Trusted Platform Module chip) of the computer, a security solution based on both hardware + software. With the *bit-locker* BIOS loaded the SSDs can be encrypted if requested by the customer.

In case the HostRecon or Host computer needs to be removed from the site, one can protect all data on the computer by entering System BIOS Setup and resetting the BIOS to the factory default settings.

Following BIOS versions "V02.34" can be downloaded from InCenter (see also table below):

- HostRecon 'normal' version
- HostRecon '*bit-locker*' version
- Host 'normal' version
- Host '*bit-locker*' version
- Recon version

HostRecon and Host computers are shipped from the factory with the 'normal' BIOS version installed.

Release *)	Encryption	Computer	BIOS file
R5.x	N	Z440 HostRecon	DHF268758_Z440_CHR_BIOS_SETTINGS_V05.zip
R5.x	Y	Z440 HostRecon	DHF268757_Z440_CHR_BIOS_SETTINGS_BITLOCKER_V05.zip
R5.x	N	Z440 Host	DHF268760_Z440_HOST_BIOS_SETTINGS_V05.zip
R5.x	Y	Z440 Host	DHF268759_Z440_HOST_BIOS_SETTINGS_BITLOCKER_V05.zip
R5.x	NA	Z440 Recon	DHF268761_Z440_RECON_BIOS_SETTINGS_V05.zip

*) Refer to the applicable SIM for related/derived R5.x releases for the various system types and world regions (e.g. China, Brazil).

12.2 Installing BIOS Firmware from USB stick

1. Download the firmware from InCenter , (MR Downloads > MR Computer Firmware).
2. Unzip the two files and store them on a USB-stick (FAT32 file system).
   a) Store the BIOS firmware (*.bin) in the following folder `\Hewlett-Packard\BIOS\New\M*.bin`
   b) Store the Philips Custom BIOS Settings (HPSETUP.txt) in the Root folder of USB Stick.
3. Insert the USB stick with the downloaded firmware in the computer.
4. Power up the computer.
5. Press <**F10**> during boot-up (at power-on screen) to enter "**System BIOS Setup**".
6. Enter BIOS Setup password: **`Philips123`**.

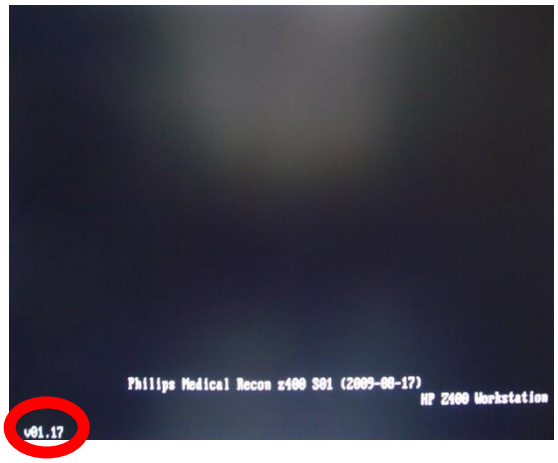


Figure 11 – System BIOS version displayed (example)

7. Language can be set by pressing <**F8**> and selecting **English**; press <**Enter**> to continue.
8. Under **Main Menu**, select **Update System BIOS**.
9. Select **Update Bios – x.xx** and wait until System BIOS update is complete
   – *Wait until System Reboots automatically*
10. Check BIOS Firmware version in left hand lower corner of the boot-up screen

CAUTION

Do not turn off power or attempt to reboot the computer during the update process.

12.3 BIOS Settings Load Procedure from USB Stick

The BIOS settings can be restored from an USB stick (FAT32 file system). Make sure the Philips Custom BIOS Settings for Z440 computer "HPSETUP.txt" are present in root folder of USB Stick. Plug the USB stick in an USB slot of the computer and turn on the computer.
NOTE: as described below 'Replicated Setup' is to be performed twice to correctly reinstall the Z440 Philips custom BIOS settings after applying the Factory Defaults.

1. Press <**F10**> during boot-up (at power-on screen) to enter "**System BIOS Setup**".
2. Language can be set by pressing <**F8**> and selecting **English**; press <**Enter**> to continue.
3. Enter BIOS Setup password: **`Philips123`**.
4. Under **Main Menu**, select **Apply Factory Defaults and Exit**.
   – *Wait till System Reboots automatically.*
5. Press <**F10**> during boot-up (at power-on screen) to enter **System BIOS Setup**.
6. Enter BIOS Setup password: **`Philips123`**
7. Under **Main Menu**, select **Replicated Setup**.
8. Select **Restore current settings from USB device**.

9. Under **Main Menu**, select **Save Changes and Exit**.
   - *Wait till System Reboots automatically*.
10. Press <**F10**> during boot-up (at power-on screen) to enter **System BIOS Setup**.
11. Enter BIOS Setup password: **`Philips123`**
12. Under **Main Menu**, select **Replicated Setup**.
13. Select Restore current settings from USB device.
14. Under **Main Menu**, select **Save Changes and Exit**..
15. Remove USB Stick
    – *The system reboots automatically*.

CAUTION

DO NOT select "**Save to Removable media**". If you do select this it will overwrite your BIOS settings from the file 'HPSETUP.txt', and the original content on your USB-stick will be lost.

16. The BIOS version (V02.34) loaded is displayed in the lower left hand corner of the initial Power-on screen. Depending on computer type and the BIOS version, the following is displayed at the bottom of the screen (similar to the figure) when the PMS-MR BIOS settings are loaded successfully:

    - For the Z440 HostRecon Computer 'Normal': "**Philips HC MR HostRecon Z440 R00 (02Jun2015)**"
    - For the Z440 HostRecon Computer with Bit-locker: "**Philips HC MR HostRecon Z440 Bitlocker R00 (02Jun2015)**"
    - For the Z440 Host Computer 'Normal': "**Philips HC MR Host Z440 R00 (02Jun2015)**"
    - For the Z440 Host Computer with Bit-locker: "**Philips HC MR Host Z440 Bitlocker R00 (02Jun2015)**"
    - For the Z440 Reconstructor: "**Philips HC MR Recon Z440 R00 (04Jun2015)**"

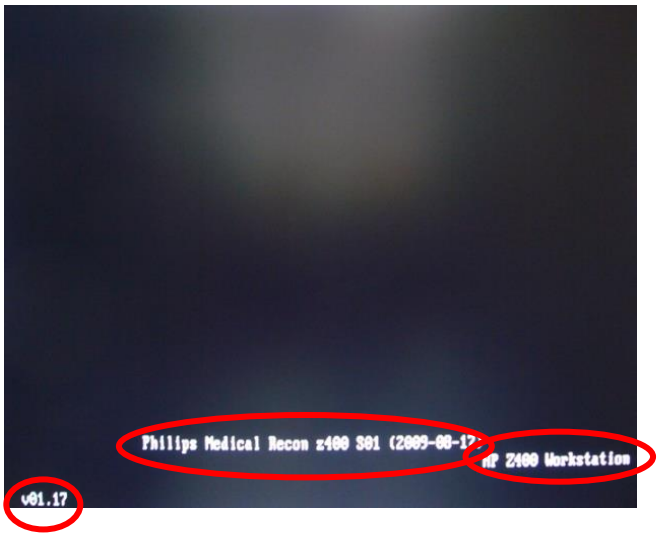


Figure 12 – PH-MR BIOS settings are loaded successfully (example)

NOTE

The Setting version (Sxy) and date (yyyy-mm-dd) are introduced for the following purposes:

- To identify the current- and new BIOS update;
- To identify the current- vs. new System BIOS settings and its load procedure.

12.4 Enable/Disable Hard Disk Encryption

After the Bit-locker BIOS is loaded the encryption can be enabled with this procedure:

1. Logon as MRService user.
2. Open a command window.
3. Type: **`prepare_bitlocker`**

   Drive F will be made the active drive.

   Do you want to continue? <Y/N>: **Y**

   Reboot follows.

4. Logon as MRService user.
5. Open a command window.
6. Type: **`activate_bitlocker`**
   - The system will start encrypting the partitions.
   - Extra reboot is required on 'new' Bitlocker systems because the OS takes ownership of the TPM. This must be confirmed via <**F1**>.
   - Be patient; the process can take over 60 minutes to finish the encryption.

To disable the encryption, follow this procedure:

1. Logon as MRService user.
2. Open a command window.
3. Type: **`deactivate_bitlocker`**
   - System will start undoing the encryption.
   - DO NOT reboot the computer during this process, since it would BLOCK access to the database partition.

Before computer shipment with data protection do the following:

1. Shutdown and restart the computer.
2. At restart select <**F10**> to enter the Computer Setup.
3. Select: **Security** > **System Security**.
4. Select: **Reset BIOS to factory defaults**.
5. Select: <**F10**> to accept
6. Select: **File** > **Save** the settings and exit.
7. Switch off the computer (is ready for shipment).

13 FIRMWARE UPDATE Z240

Firmware installation procedure for Z240 Scan Control Computer (DDAS)

13.1 Introduction

For the Z240 Scan Control Computer (SCC) BIOS firmware version “v01.27 (2016-07-29)” is introduced.

13.2 Installing BIOS Firmware from USB stick

1. Download the firmware from InCenter , (MR Downloads > MR Computer Firmware).
2. Unzip the two files and store them on a USB-stick (FAT32 file system).
   a) Store the BIOS firmware (*.bin) in the following folder `\Hewlett-Packard\BIOS\New\N*.bin`
   b) Store the Philips Custom BIOS Settings (HPSETUP.txt) in the Root folder of USB Stick.
3. Insert the USB stick with the downloaded firmware in the computer.
4. Power up the computer.
5. Press <**F10**> during boot-up (at power-on screen) to enter “**System BIOS Setup**”.

   If display time of BIOS version is too short:
   Press <**F10**> during power-recycle and enter BIOS setup to check BIOS Version in the system Information Menu.

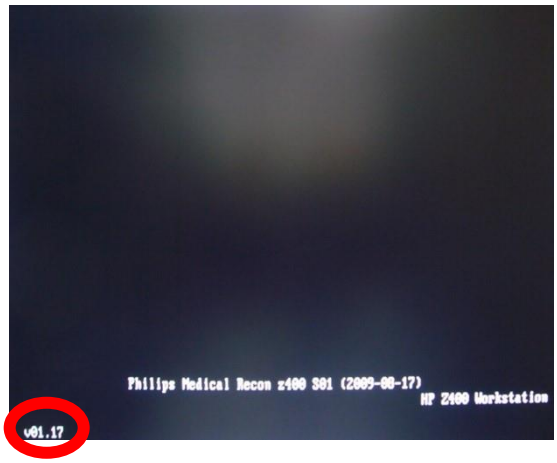


Figure 13 – System BIOS version displayed

6. Language can be set by pressing <**F8**> and selecting **English**; press <**Enter**> to continue.
7. Under **Main Menu**, select **Update System BIOS**.
8. Select **Update Bios – x.xx** and wait until System BIOS update is complete
   – *Wait until System Reboots automatically*
9. Check BIOS Firmware version in left hand lower corner of the boot-up screen

CAUTION	
	Do not turn off power or attempt to reboot the computer during the update process.

13.3 BIOS Settings Load Procedure from USB Stick

The BIOS settings can be restored from an USB stick (FAT32 file system). Make sure the Philips Custom BIOS Settings for Z240 computer “HPSETUP.txt” are present in root folder of USB Stick. Plug the USB stick in an USB slot of the computer and turn on the computer.

1. Press <**F10**> during boot-up (at power-on screen) to enter “**System BIOS Setup**”.
2. Language can be set by pressing <**F8**> and selecting **English**; press <**Enter**> to continue.
3. Under **Main Menu**, select **Apply Factory Defaults and Exit**.
   – *Wait till System Reboots automatically.*
4. Press <**F10**> during boot-up (at power-on screen) to enter **System BIOS Setup**.

5. Under **Main Menu**, select **Replicated Setup**.
6. Select **Restore current settings from USB device**.
7. Under **Main Menu**, select **Save Changes and Exit**.
8. Remove USB Stick
   - *The system reboots automatically.*

CAUTION

Do not “Save to Removable media” because this will overwrite your BIOS settings from the file, HPSETUP.txt and the original content on your USB-stick is lost.

14. If the text “**Philips HC MR SCC Z240 R00 (2016Jul29)**” is displayed on the screen like the figure, then the Philips Custom BIOS settings are loaded successfully.

NOTE

The Setting version (Sxy) and date (yyyy-mm-dd) are introduced for the following purposes:

- To identify the current- and new BIOS update;
- To identify the current- vs. new System BIOS settings and its load procedure.

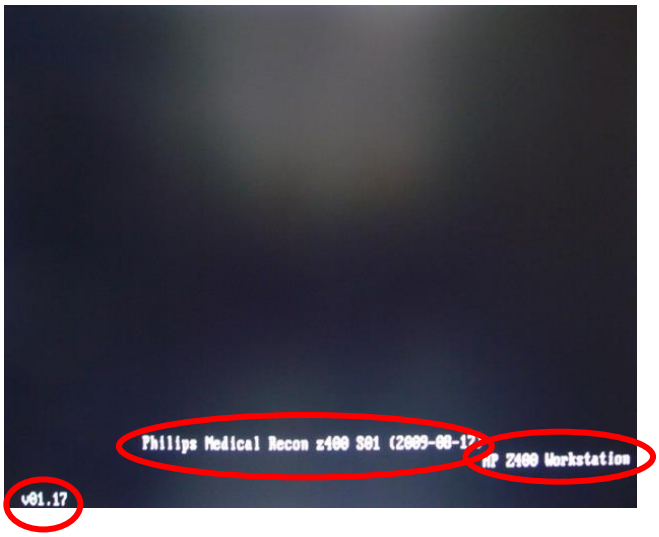


Figure 14 – PH-MR BIOS settings are loaded successfully (example)

14 FIRMWARE UPDATE RP5810

14.1 Introduction

For the DVD PC-5 RP5810 Computer BIOS firmware version “v02.26” is introduced.
The procedures that follow tell you how to update the BIOS firmware, and how to update the BIOS settings.

14.2 Pre-requisites

- Download the firmware from InCenter, (MR Downloads > MR Computer Firmware).
- Unzip/Save the RP5810 BIOS firmware file (L20_0226.bin) in the **root** folder of USB stick (FAT32 file system).
- Unzip/Save Philips Custom BIOS Settings file (CPQSETUP.txt) in the **root** folder of the USB stick.

14.3 BIOS Firmware Update Procedure

- Power-On the computer
- Press ***<F10>*** in power-on screen
- Enter BIOS Setup Password “***Philips123***”
- Under ***File***, select “***Flash System ROM***”
- Select “***USB***”
- Select “***L*.bin***” and select “***OK***”

  *** **Do NOT remove power** ***
- Wait till green window appears stating “***System ROM Flash was successful.***”
- Press ***<ENTER>***; system reboots automatically

14.4 BIOS Settings Update Procedure

- Power-On the computer
- Press ***<F10>*** in power-on screen
- Enter BIOS Setup Password “***Philips123***”
- Under ***File***, select “***Default Setup***”
- Select “***Restore Factory Settings as Default***”
- Green window appears stating “***Restored Factory Settings as Default***”; press ***<ENTER>***
- Under ***File***, select “***Apply Defaults and Exit***” and press ***<ENTER>***
- Wait till system reboots automatically
- Press ***<F10>*** in power-on screen
- Enter BIOS Setup Password “***Philips123***”
- Under ***File***, select "**Replicated Setup**"
- Select "**Restore from Removable Storage Media**"
- Blue window appears stating "Save/Restore was Successful"; press <**Esc**>
- Under ***File***, select “***Save Changes and Exit***” and press <**Enter**>

  *** System Reboots automatically ***