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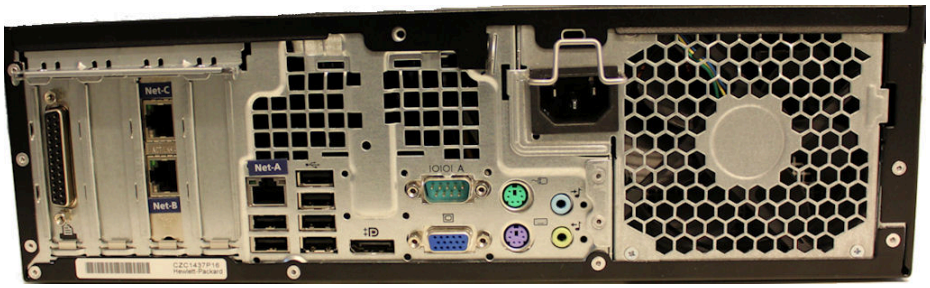
+ D U G D Z U H H V F U L S W L

&DELQHWSDQHO

Connectors for power, user interfaces and external equipment are located on the rear panel. See *MP8200 external connections* on page 9.

Several different types of MP8200 computers are available using different interface cards. See *Interface cards and connections* on page 11.

Figure 2 Cabinet rear panel (example)



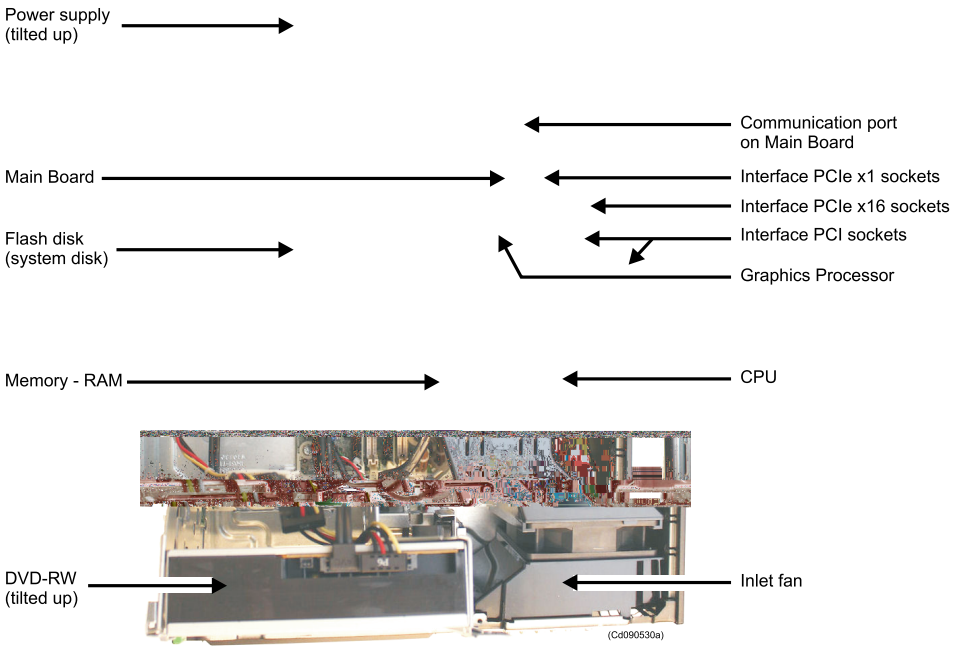
&DELQHWLQWHULRU

Location of the main components inside the cabinet is shown in the figure below. The computer is shown from above with the front wall pointing towards you.

The power supply with its cooling fan is tilted up and located back to the left.

The DVD-RW drive assembly is also tilted up and located in front to the left.

Figure 3 Cabinet interior



The interface card assembly modules (removed in figure above) are located in the upper right hand corner. They can easily be pulled out for changing of interface cards. No screws are to be unscrewed, only lift the lever at the green coloured handle, which secures the interface cards to the main board and release the interface card lock.

03 FRQ¿JXUL RQ

The following cards and components are available for the different models of the MP8200:

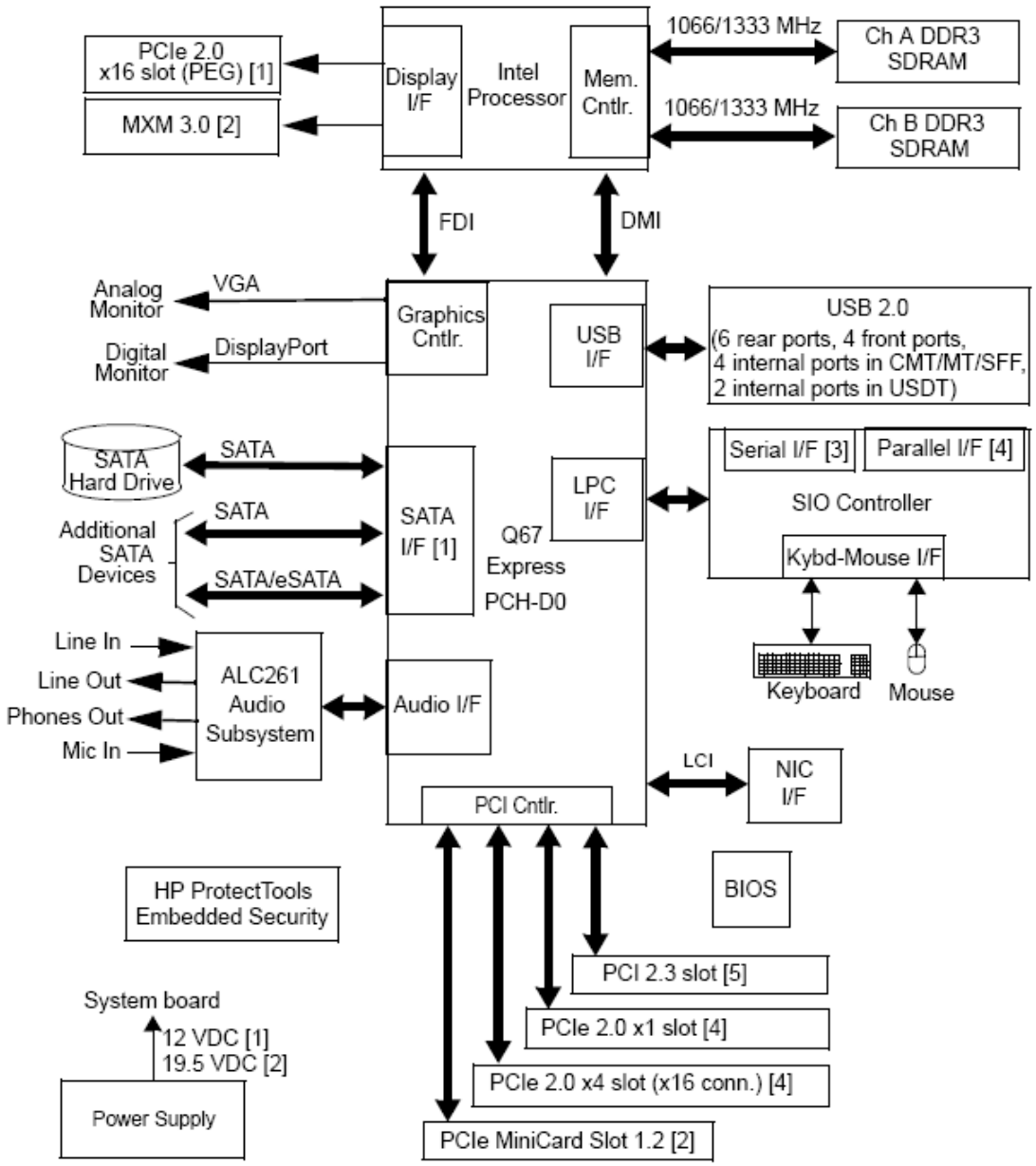
- Main board (Motherboard)
- CPU
- Memory (2 x 2 GB RAM) (all models except MP8200H)
- Memory (4 x 2 GB RAM) (MP8200H)
- Power supply 115/230 VAC
- Network card (Net B and Net C)
- Graphics card (2–screen / 4–screen)
- Serial line connector (COM2)
- BlueStorm card (8 channel serial card)
- LAN card for LAN/CAN connections
- Radar Interface card
- Flash disk (system disk)
- Hard-disk drive (recorder disk)
- DVD-RW drive
- Miniature speaker
- Reset button (On/Off)

Each of the computer and interface cards, drives and power supplies listed above are shortly described in sections below. The replaceable modules are described more detailed in separate documents (*Hardware Module Descriptions*).

The following figure shows a block diagram of the MP8200.

1RWH

The figure does not show an actual MP8200 configuration, but the available interface cards, drives and power supplies.



Notes:
[1] CMT, MT, SFF only
[2] USDT only
[3] 2 in CMT, MT, and SFF
[4] 1 in CMT, MT, and SFF only
[5] 3 in CMT, 1 in MT and SFF

0DLQERDUG

The main board is equipped with a 3.10 GHz Intel dual core CPU and 2 x 2 GB RAM.

The main board is not considered a replaceable module because the computer has to be rebuilt from scratch and thoroughly tested if the board is changed.

3RZH6UXSSO\

One power module is used. It has 115 VAC or 230 VAC as input voltage, and is of type Autosense.

,QWHUIFDDFUHGV

The following interface cards are available with MP8200 computer:

Dual network card, Single network card, 2-screen graphic card, 4-screen graphic card, Radar interface card 2 (RIC2), BlueStorm eight channel serial interface card, and COM2 connector.

6WRUHGUHLV

Standard DVD-RW drive, flash disk and hard-disk drive for HS/DP Recorder data is used in the computer.

0LQLDWXSUHHDN

The speaker is located inside the cabinet on the front wall.

&RROLQQV

Two CPU fans are located in the centre, behind the CPU. It provides cooling to the CPU and graphics processor.

The power supply module contains a fan located inside the power supply cabinet.

3RZH2U1 2))EXWWRQ

A black ON/OFF button is located in the centre of the cabinet front.

Pressing the button once, the computer is turned On or Off, depending on the prerequisite.

03 H[WHUFQRDQQQHFWLRQV

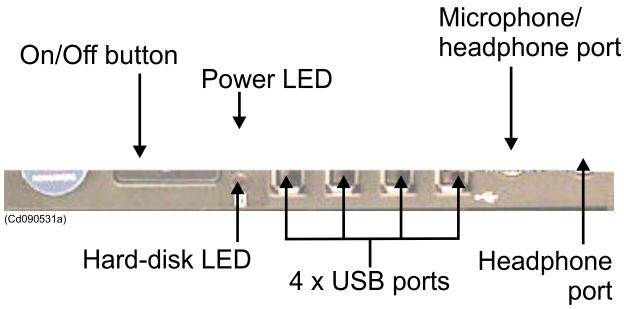
The MP8200 provides (including options) the necessary set of standard PC connectors for user interfaces and the necessary set of application-required connectors for system interfacing.

0DLQERDUFGRQQHFWLRQV

This section lists the connectors available from the main board. For more details refer to the *Hardware Module Description* for the main board.

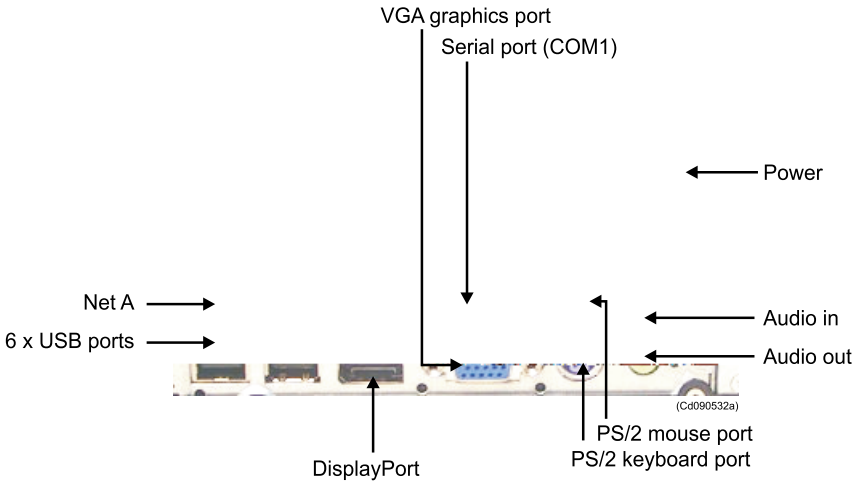
The following figure shows front connectors for external connections:

Figure 4 Front – external connections



The following figure shows rear wall connectors for external connections:

Figure 5 Rear – external connections



Mouse

This is a standard PS/2 serial mouse connector.

Keyboard

This is a standard PS/2 keyboard connector.

Network

This is a standard ethernet network connection based on the RJ45 connector. It is assigned to the network A in the redundant process network.

Audio In

This is a audio line input connection based on the mini jack connector.

Audio Out

This is a audio line output connection based on the mini jack connector.

Microphone

This is a microphone connection based on the mini jack connector. A contact is located on the front and on the rear wall.

Headphones

This is a headphones connection based on the mini jack connector and is located on the front.

USB

The main board provides ten USB (Universal Serial Bus) roots (ports) for attaching USB devices. Four ports are available on the front and six on the rear panel.

,QWHUFRQQHFWLRQV

The illustrations below shows the different types of MP8200 computers.

Several different types of MP8200 computers are available: (see front page for part numbers). Common for all rear panels are: Net A, 6 off USB ports, VGA graphics port, Display port, PS/2 mouse port, Keyboard port, Audio -in and -out, and Main power plug as shown in *Rear – external connections* on page 10.

The rear panel layout for each type is shown in figures below. It is focused on slot 1 through 4 where the differences are.

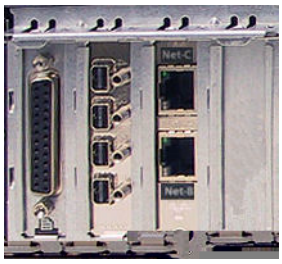
MP8200 Base model, HS/DP Recorder model and mirrored system discs model

The different card slots are (from left to right – slot 1 through 4): Parallel port, empty slot, Dual network card (Net B and C) and an empty slot.

MP8200 NAV model

The different card slots are (from left to right – slot 1 through 4): RIC2, Dual network card (Net B and C), COM2 connector and an empty slot.

MP8200 with 4-screen model



The different card slots are (from left to right – slot 1 through 4): Parallel port, 4-screen graphic card, Dual network card (Net B and C) and an empty slot.

MP8200 with LAN/CAN model

The different card slots are (from left to right – slot 1 through 4): Parallel port, an empty slot, Dual network card (Net B and C) and Single network card (CAN net).

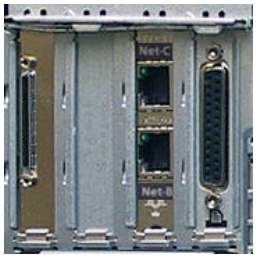
MP8200 with LAN/CAN + 2 COM ports model

The different card slots are (from left to right – slot 1 to 4): Parallel port, COM2 connector, Dual network card (Net B and C), and Single network card (CAN net).

MP8200 with dual LAN/CAN model

The different card slots are as follows (seen from left to right – slot 1 to 4): Parallel port, Single LAN/CAN card no. 2 (Net_WC2), Dual network card (Net B and C) and Single LAN/CAN card no. 1 (Net_WC1).

MP8200 with BlueStorm model (8 channel serial card)



The different card slots are (from left to right – slot 1 to 4): BlueStorm card, an empty slot, Dual network card (Net B and C) and Parallel port.

MP8200 with Matrox Extio fibre model

The different card slots are (from left to right – slot 1 to 4): COM2 connector, Dual network card (Net B and C), Parallel port and Matrox Extio fibre card (Graphic Card).

MP8200H

The different card slots are (from left to right – slot 1 through 4): An empty slot, Dual network card (Net B and C), 2–screen graphic card and COM2 connector.

Interface cards

Dual network card (standard)

The dual network card is a PCIe 4x type card and provides two network ports. The lower port is normally connected to Network B, and the upper port, if required by the system, is connected to Network C. The connectors are of the RJ45 type.

Single network card (optional)

The single network card is used as interface to the external LAN/CAN converter. It is a PCIe 16x type card. The connector on the single LAN interface card is a RJ45 type.

Matrox Extio Fibre network card

The network card is used as interface to the external Matrox Extio KVM Extension. It is a PCIe type card.

RIC2 (optional)

The Radar Interface Card2 (RIC2) is a PCI type card, is normally located in slot 1 and is used for connection to radar scanners.

BlueStorm interface card

The BlueStorm card is an 8 channel serial interface card. This card is a PCI type card and provides four RS422/485 ports and four RS232 ports serial channels by the use of a special interface split cable. The connector types used on the cable are eight 9-pin male D-sub.

1 R W H

Read the numbering on the cable connectors for which is which serial line.

For details refer to the *Hardware Module Description* for the BlueStorm interface card.

Graphics cards

The 2-screen Matrox Millenium P690LP graphics card is a PCIe 16x slot card. Split cables that come with the graphics card are used for connecting to the colour monitors.

The 4-screen Matrox M9148 Plus graphics card is a PCIe 16x slot card. Split cables that come with the graphics card are used for connecting to the colour monitors.

The fibre-optic interface card Matrox Extio PCIe1x converts outgoing bus data to an optical signal and converts incoming bus data back to an electrical signal. The card transmits and receives this optical data to and from the remote graphic unit via a fibre-optic cable. Extio has integrated graphics, audio and USB hardware which process the bus data as if it was part of an add-in card directly installed in a computer expansion slot.

1 R W H

Read the numbering on the cable connectors for which monitor they connect.

3R Z H E R Q Q H F W L R Q

The computer is provided with a standard three-pin apparatus socket and fits a standard female three-hole apparatus plug, as shown in *Rear – external connections* on page 10.

1 R W H

The power supply is of the Autosense type, and thereby automatically senses correct input voltage (either 115 VAC or 230 VAC).

& K D V V L U V R X Q G R Q Q H F W L R Q

The computer is provided with a ground terminal screw located at the right lower corner when the computer is seen from the rear side, as shown in *Rear – external connections* on page 10. This terminal must be bonded to PE (Protection Earth) with a short ground wire having large cross section.

0 3 7H F K Q LV FSDHOF L ¿ F D W L R Q V

POWER SUPPLY REQUIREMENTS

Voltage:	115/230 VAC (autosense)
Power consumption from power supply:	240 W

CONFIGURATION, PERFORMANCE AND CAPACITY

CPU type and speed:	Intel Core Duo E8400
Hard-disk drive for DP/HS Recorder disk:	Hard Disc Drive 2.5” SATA
Flash disk:	Transcend 128 GB SSD drive
DVD-RW drive:	SATA 16X super multi light scribe drive
Memory (all models except MP8200H):	2 x 2 GB RAM
Memory (MP8200H):	4 x 2 GB RAM
Power Supply 115/230 VAC:	Power Supply
VGA:	On main board — Intel processor
DVI:	Display port
Dual network interface card: (Network interface, one port on main board)	HP NC360T PCI Express Dual Port Gigabit NIC
Single network interface card:	Broadcom NetXtreme Gigabit PCIe NIC, (optional)
Graphics card (2-screen):	Matrox Millenium P690LP, PCIe x 16
Graphics card (4-screen):	Matrox M9148 Plus
RIC:	RIC card (optional)
Serial interface:	- BlueStorm 8 ports RS422/485 FH surge DB09M cable

MECHANICAL SPECIFICATION

Size: width x depth x height:	337 x 379 x 103 mm
Weight:	Approx. 7.6 kg

ENVIRONMENTAL REQUIREMENTS

Refer to KM Environmental Specification, document number 161011.

LIFE CYCLE SPECIFICATION

MTBF calculated:	108 206 hours

)DXOWLQGLQJ

)DXOWRFDWLRQ LGHQWL¿FDWLRQ

If a fault situation has occurred, the fault is normally identified from the symptoms observed. It is therefore important to record all these observations to help the maintenance person or service engineer. All error messages shown on the screen should be logged for this purpose.

1RWH

If you are not able to correct the error situation yourself, you should contact your nearest Kongsberg Maritime service office for advice or to request service.

The fault-finding table below assumes that the problem is caused by the MP8200 computer itself and no external factors are involved.

Table 1 Fault-finding tips

ID	Symptoms	Probable Error Source	Corrective Action
1	No visible or audible sign of power present at MP8200. Fans are not blowing.	External supply voltage is turned off or circuit-breaker fuse has tripped.	Check the 115/230 VAC power supply.
		Internal power supply defect.	Replace power supply. See procedure *How to replace the Power Supply model* on page 33.
2	Applications are not loading when booting the MP8200. Only blue screen displayed.	Defective file system.	Reinstall the software by using the system backup CD.
3	Applications are not loading when booting after the entire operating system software has been installed on MP8200. Only blue screen displayed.	Defective flash disk	Replace flash disk. See procedure *How to replace the flash disk* on page 25.
4	MP8200 does not respond over network on either channel.	Network task not running.	Reboot MP8200.
5	MP8200 responds over network on only one of three channels.	Defective network card or network part of main board.	Replace network card. See procedure *How to replace a socket-mounted PCI and PCIe card* on page 30.
6	MP8200 crashes or hangs unexpectedly.	Possible defective RAM memory card.	Replace RAM memory card. See procedure *How to replace a RAM memory card* on page 32.

3 U H HY Q W H L 0 Y D L Q W H Q D Q

Replacement procedures relating to preventive maintenance, are described only in the Corrective maintenance section.

+ R Z W R R O H D W Q K 0 H 3 F D E L Q H X W I D F H

Use a lint-free, non-abrasive cloth and a neutral or mild soap solution for best result. Do not use a dripping wet cloth when cleaning. Use only a moistened cloth.

3 U H HY Q W H L P Y D L Q W H Q L D Q W F H O U Y

1 R W H

These procedures should be performed on each MP8200 in the system. Local evaluations should be made to determine site-specific maintenance intervals.

Table 2 Recommended preventive maintenance intervals

ACTION	INTERVAL RECOMMENDED
Clean all operator panels. Clean all filters for units equipped with fans.	Every week.
Clean cabinet surface.	Each month.
Check for loose connectors and wires.	Every six month.

&RUUHFWLYH PDLQWHQDQ

Corrective maintenance procedures not described in this section are to be found in the appropriate *Hardware Module Description* for the part numbers referred to in the replaceable parts and recommended spare parts list. Corrective maintenance of parts not provided by any of the above should be performed by Kongsberg Maritime service personnel only.

5HSODFHPHQW SURFHGXUHV

Caution

Electrostatic charges can damage components on the cards. Notice the following precautions: Always wear a properly connected earthing strap when handling unpacked cards. Place unpacked cards only on a properly connected earthing mat or a shielding bag. Keep cards in their shielding bags when not installed. Never store cards near electromagnetic or electrostatic devices.

1RWH

Shut down the MP8200 in a controlled manner. Refer to the system operator manual for the appropriate procedure.

:$51,1*

7RDYRLGWKHULVNDFFRPSDQ\LQJKLJKYROWDJHVDOZD\VWXUQRIIWKH SRZHUFLUFXLWVXSSO\LQJWKHFRPSXWHUEHIRUHRSHQLQJWKHFDELQHW

+RZWRUHPRYH0 3 FRPSXWHUIURPGDPSHUNLW

Two Damper kits are available: One for horizontal mounting and one for vertical e.g. door mounting, see figures below.

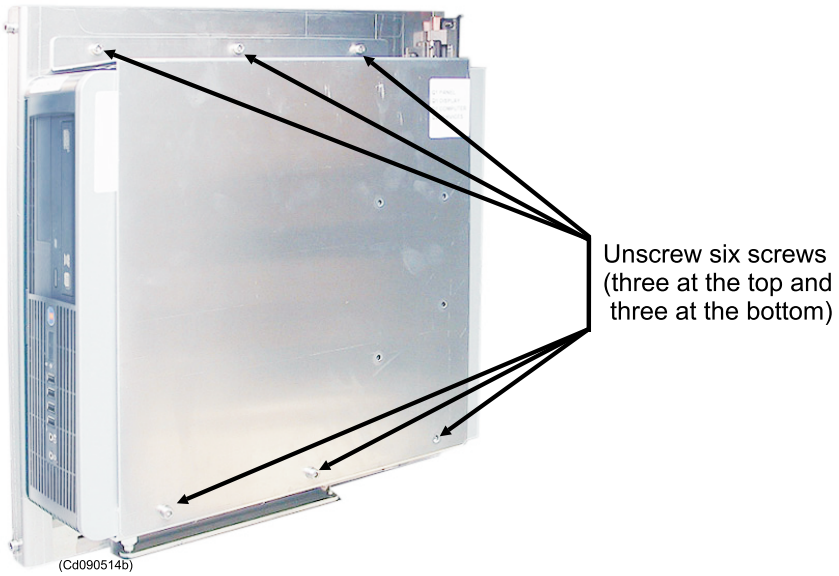
1 Disconnect all cables connected to the computer.

2 Standing in front of the computer locate the damper kit.

3 Unscrew 4 off screws (horizontal mounting, see Figure 6) or 6 off screws (vertical mounted, see Figure 7 and) on the damper kit securing the computer.

Figure 6 Horizontal mounted Damper kit

Figure 7 Vertical mounted Damper kit (shown with a different computer type)



4 Carefully remove the computer and place aside.

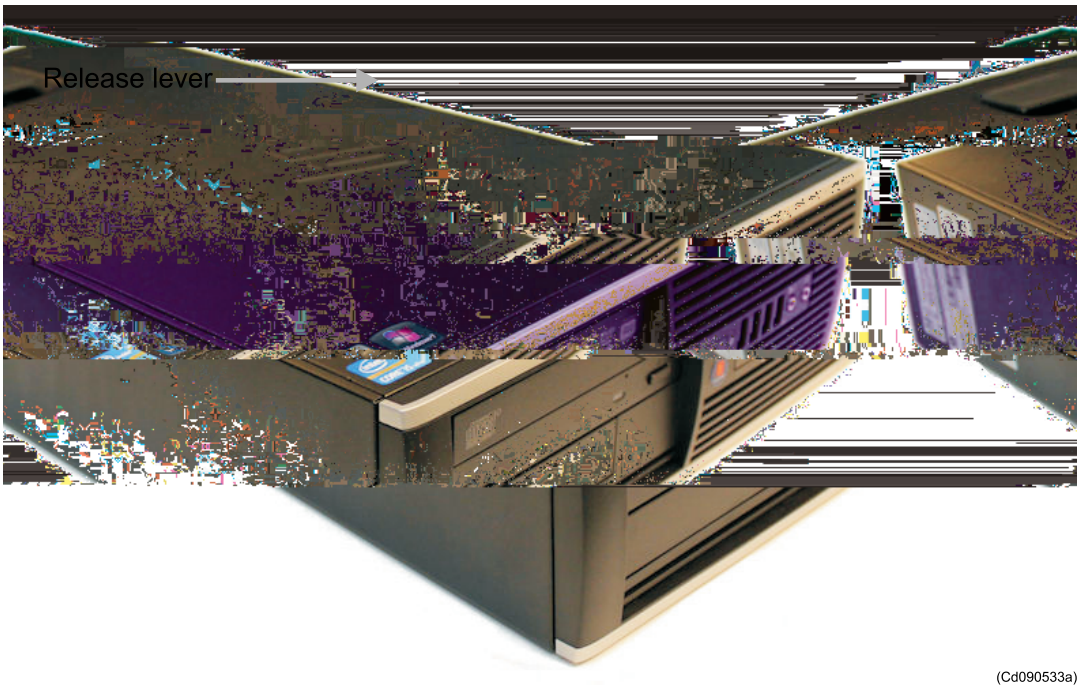
+ R ZW RU H PYRH F R P S X WOHLUG

1 Disconnect all cables connected to the computer.

2 Place the computer on a firm surface.

3 Use the release lever to open the lid.

Figure 8 Release lever of the cabinet lid



(Cd090533a)

+RZWRUHSODFKH9'5: GUHLY

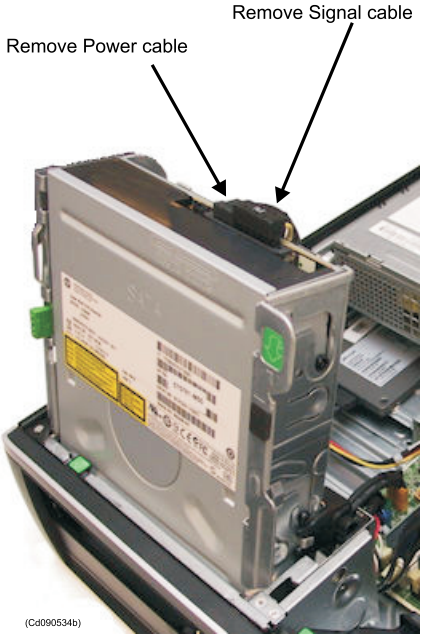
The following steps must be done before performing this procedure:

- The power to the MP8200 computer must have been turned off.
- Ensure that the new drive is equal to the one listed in recommended consumable spare part list.
- The damper kit must have been removed from the computer, as described in *How to remove MP8200 computer from Damper kit* on page 19.
- The cabinet lid must have been removed from the computer, as described in *How to remove computer lid* on page 21.

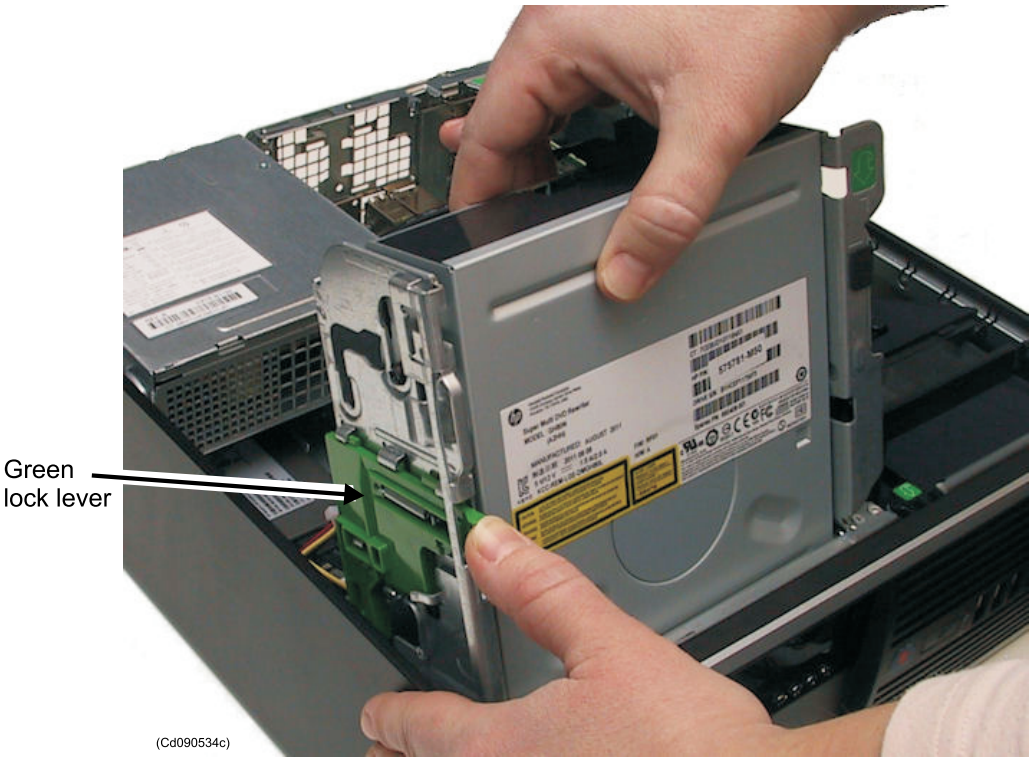
Disassembly

1 Tilt the DVD-RW drive assembly in upwards direction, by pulling the green coloured handle towards you.

2 Disconnect and remove the flat signal cable and power cable from the DVD-RW drive, as identified in figure below:



3 Release the lock for DVD-RW drive by pushing the lever in, identified in figure below.



4 Carefully slide the drive out from its bracket.

5 Mark the DVD-RW with a label describing the symptoms observed, carefully pack in a shielding bag and place on a secure place.

Reassembly

1 Set any mode jumpers of the new drive to the same positions as for the replaced drive.

2 Reassemble by performing steps 1 to 4 of the *Disassembly* procedure above, in reverse order.

3 Verify proper drive operation.

+ R ZW R U H S O D F K À H D V G L V N

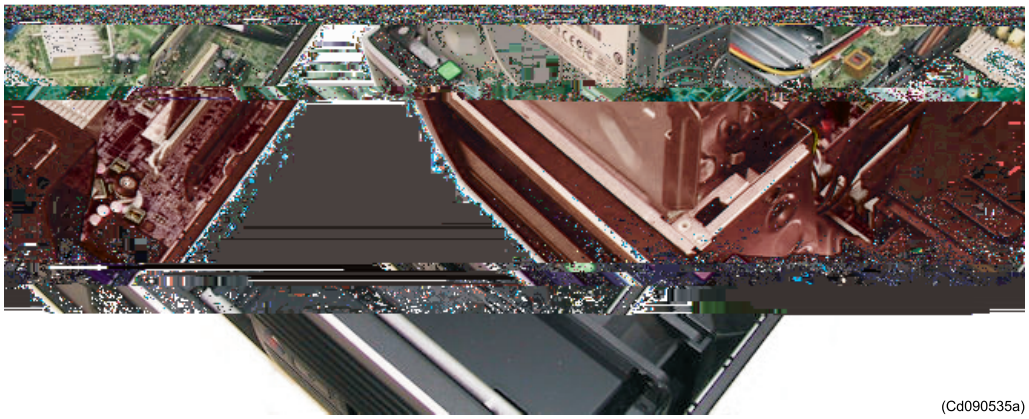
The following steps must have been done before performing this procedure:

- The power to the MP8200 computer must have been turned off.
- Ensure that the new system flash disk drive is equal to the one listed in recommended consumable spare part list.
- The damper kit must have been removed from the computer, as described in *How to remove MP8200 computer from Damper kit* on page 19.
- The cabinet lid must have been removed from the computer, as described in *How to remove computer lid* on page 21.

Disassembly

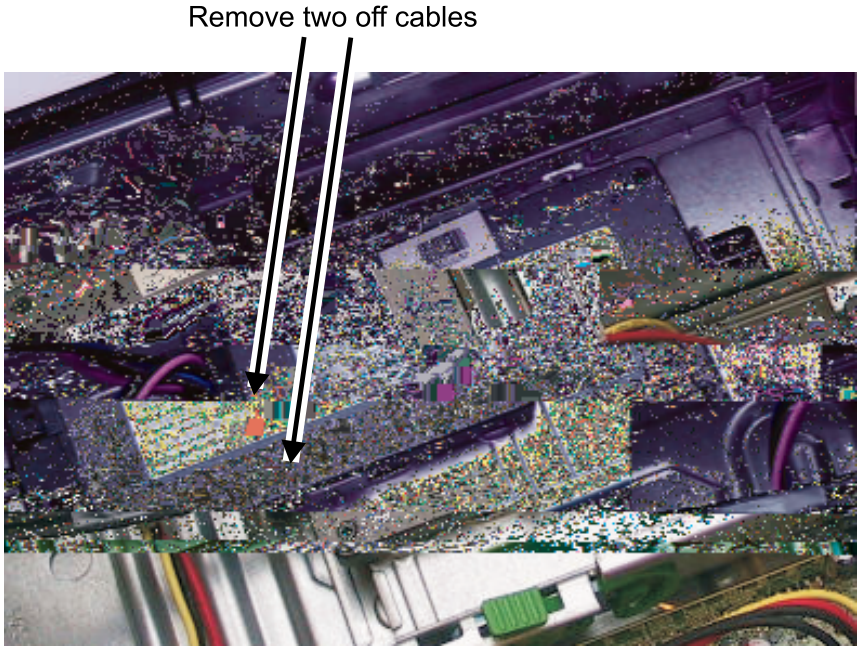
1 Place the computer on a flat surface with the interface cards towards you.

2 Tilt the power supply assembly and the chassis for the DVD-RW drive in upwards direction.



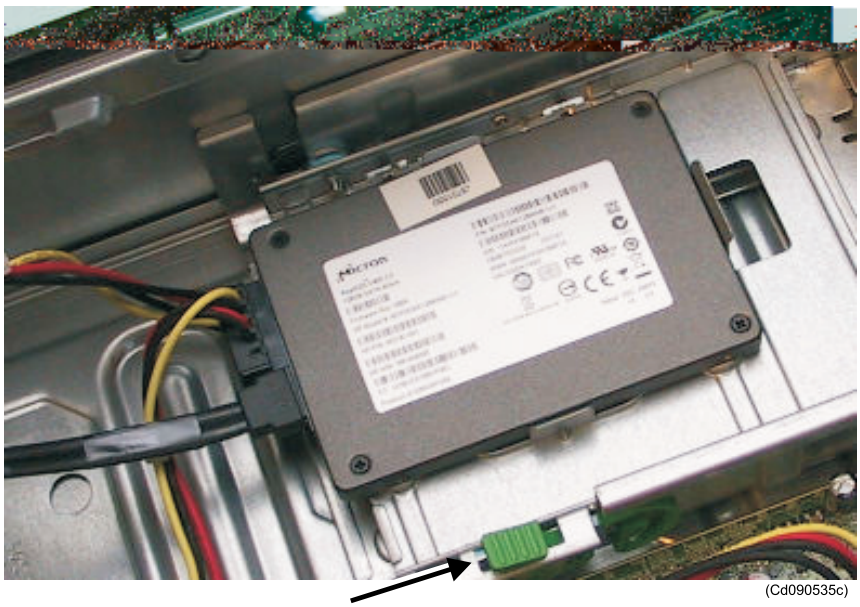
(Cd090535a)

3 Disconnect and remove the 2 off flat cables from the disk, as identified in figure below:



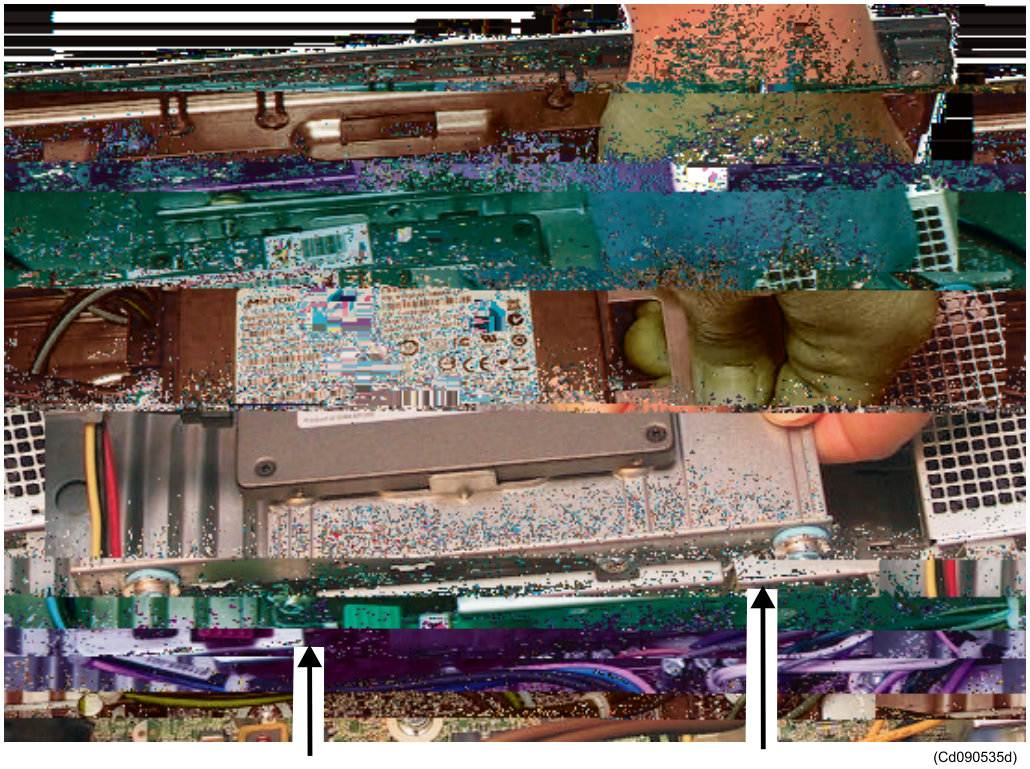
(Cd090535b)

4 Release the lock for the flash disk by pulling out, as identified in figure below:



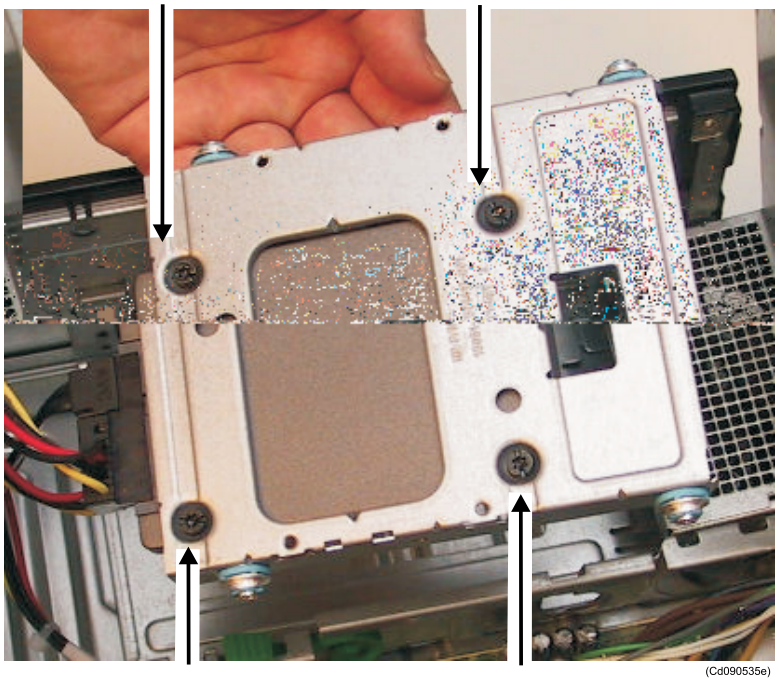
(Cd090535c)

5 Carefully lift the disk from its frame.



(Cd090535d)

6 Release the four screws underneath.



(Cd090535e)

7 Mark the old disk with a label describing the symptoms observed, carefully pack in a shielding bag and place on a secure place.

Reassembly

1 Reassemble by performing steps 1 to 5, of the *Disassembly* procedure, in reverse order.

2 Verify proper operation. The flash disk must then be reloaded with backup data (see separate procedure).

+RZWRUHSODFKHDUG GLVHNYRU+6 '35HFRUGHQG 03 +

The HS/DP Recorder and MP8200H consists of one 32 Gb Flash disk, containing system application, and two mirrored hard–disks, 500 Gb each for the HS/DP Recorder, and 750 Gb for the MP8200H. These disks are for recorded data.

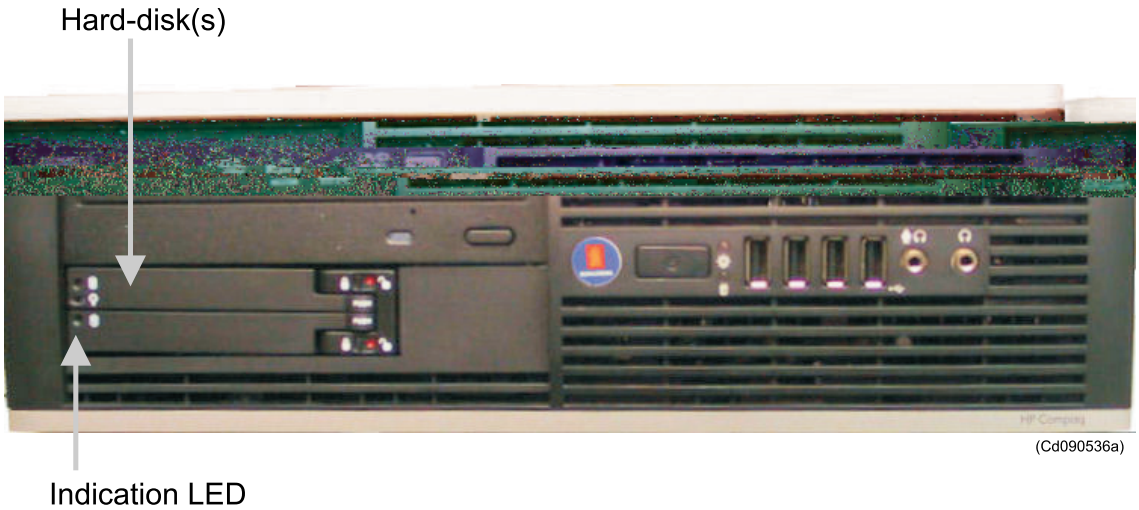
1RWH

For each hard-disk there is an indication LED in front. If the disk is defect the LED will be lit red.

Disassembly

Release the hard-disk by opening the disk's front cover.

Figure 9 Hard-disks



+ R ZW RU H S O D V F R F HNW P R X Q W3H&GD Q G3 & , HF D U G

1 R W H

The PCI sockets are the two white sockets, and the PCIe socket is the black socket, refer to Cabinet interior on page 6.

1 R W H

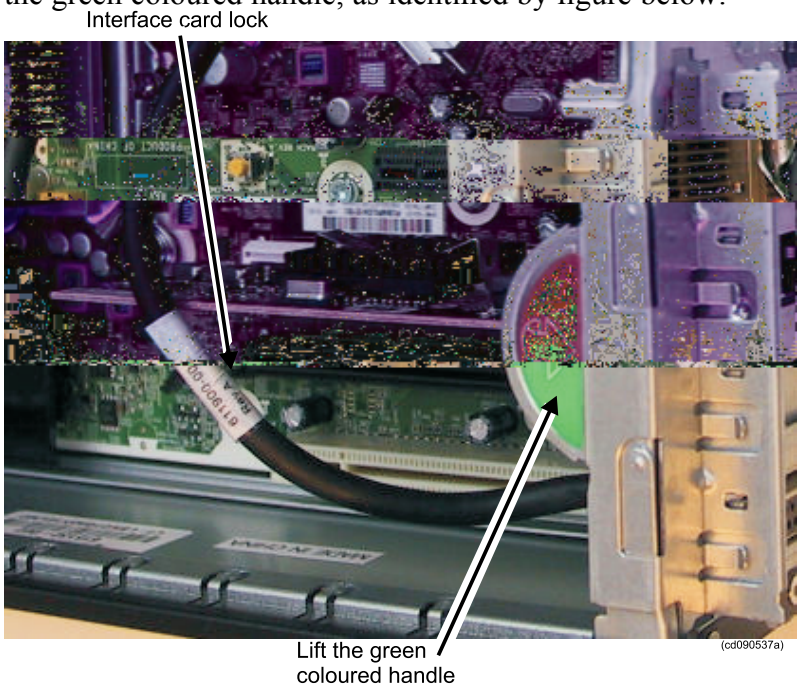
No screws are to be unscrewed to replace an interface card, only lifting the lever at the green coloured handle, which secures the interface card to the main board.

The following steps must have been done before performing this procedure:

- The power to the MP8200 computer must have been turned off.
- The cable must be removed from the interface card to be replaced.
- Ensure that the new card is equal to the one listed in recommended consumable spare part list.
- The kit must have been removed from the computer, as described in *How to remove MP8200 computer from Damper kit* on page 19.
- The cabinet lid must have been removed from the computer, as described in *How to remove computer lid* on page 21.

Disassembly

1 At the rear end of the computer, loosen the locking lever for the PCI cards by lifting the green coloured handle, as identified by figure below:



2 Release the interface card lock and carefully pull the PCI (PCIe) card assembly to be replaced upwards from the socket card and remove the card assembly.

3 Mark the card with a label describing the symptoms observed, carefully pack in a shielding bag and place on a secure place.

Reassembly

1 Check that all jumper and DIP settings of the new card are set correctly before starting to reassemble.

2 Reassemble by performing steps 1 to 2, of the *Disassembly* procedure, in reverse order.

3 If the card is a network card, you should perform the Checking Network Cards procedure, else verify proper operation of MP8200.

+ R ZW RU H S O D 5 $ 0 P H P R UF D U G

The following steps must have been performed before performing this procedure:

- The power to the MP8200 computer must have been turned off.
- Ensure that the RAM memory card is equal to the one listed in recommended consumable spare part list.
- The kit must have been removed from the computer, as described in *How to remove MP8200 computer from Damper kit* on page 19.
- The cabinet lid must have been removed from the computer, as described in *How to remove computer lid* on page 21.

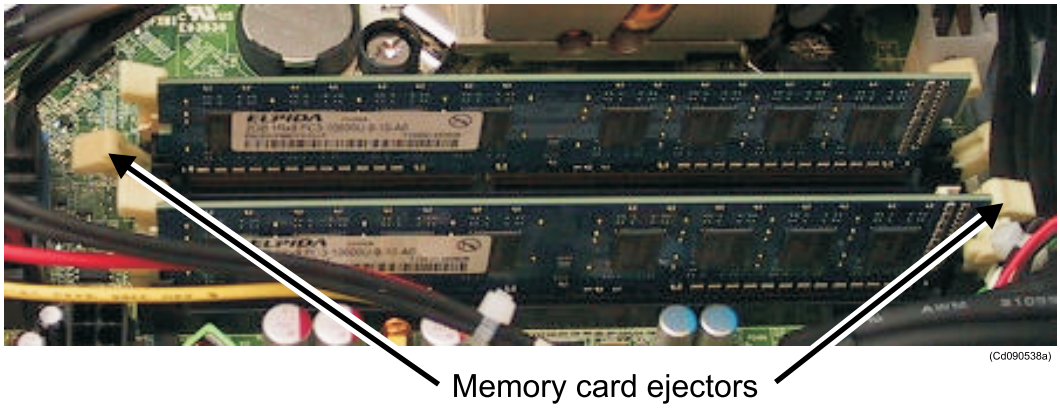
Disassembly

1 Lift the power supply assembly and the DVD-RW assembly, as described in on page .

2 Locate the RAM memory card inside the computer.

3 Remove the RAM memory card by pressing the ejectors at both ends of the memory card to release it from the socket, see figure below:

Figure 10 Memory card sockets with ejectors



4 Mark the memory module with a label describing the symptoms observed, carefully pack in a shielding bag and place on a secure place.

Reassembly

1 Reassemble by performing step 1 to 3 of the *Disassembly* procedure, in reverse order.

2 Verify proper operation of MP8200.

+ R ZW R U H S O D W K H R Z H 6 U X S S O P R G H O

The following steps must have been performed before performing this procedure:

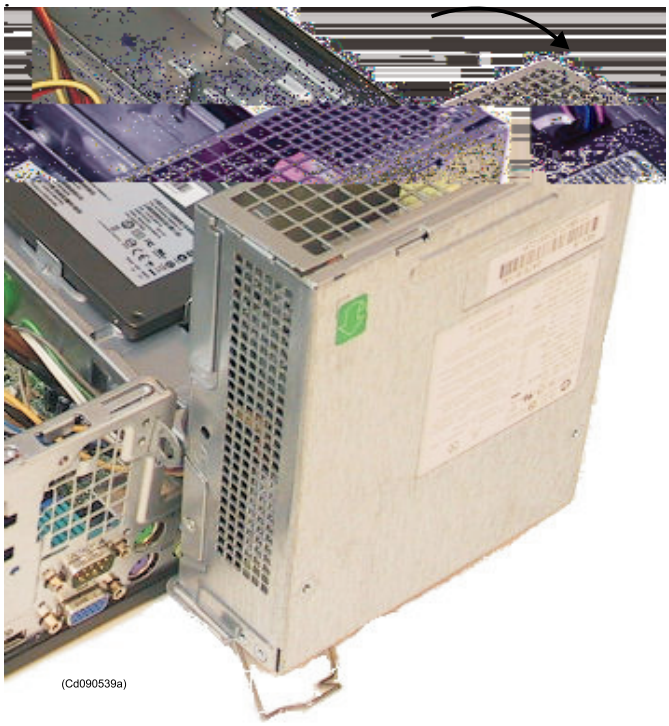
- The power to the MP8200 computer must have been turned off.
- Ensure that the new power supply module is equal to the one listed in recommended consumable spare part list.
- The kit must have been removed from the computer, as described in *How to remove MP8200 computer from Damper kit* on page 19.
- The cabinet lid must have been removed from the computer, as described in *How to remove computer lid* on page 21.

1 R W H

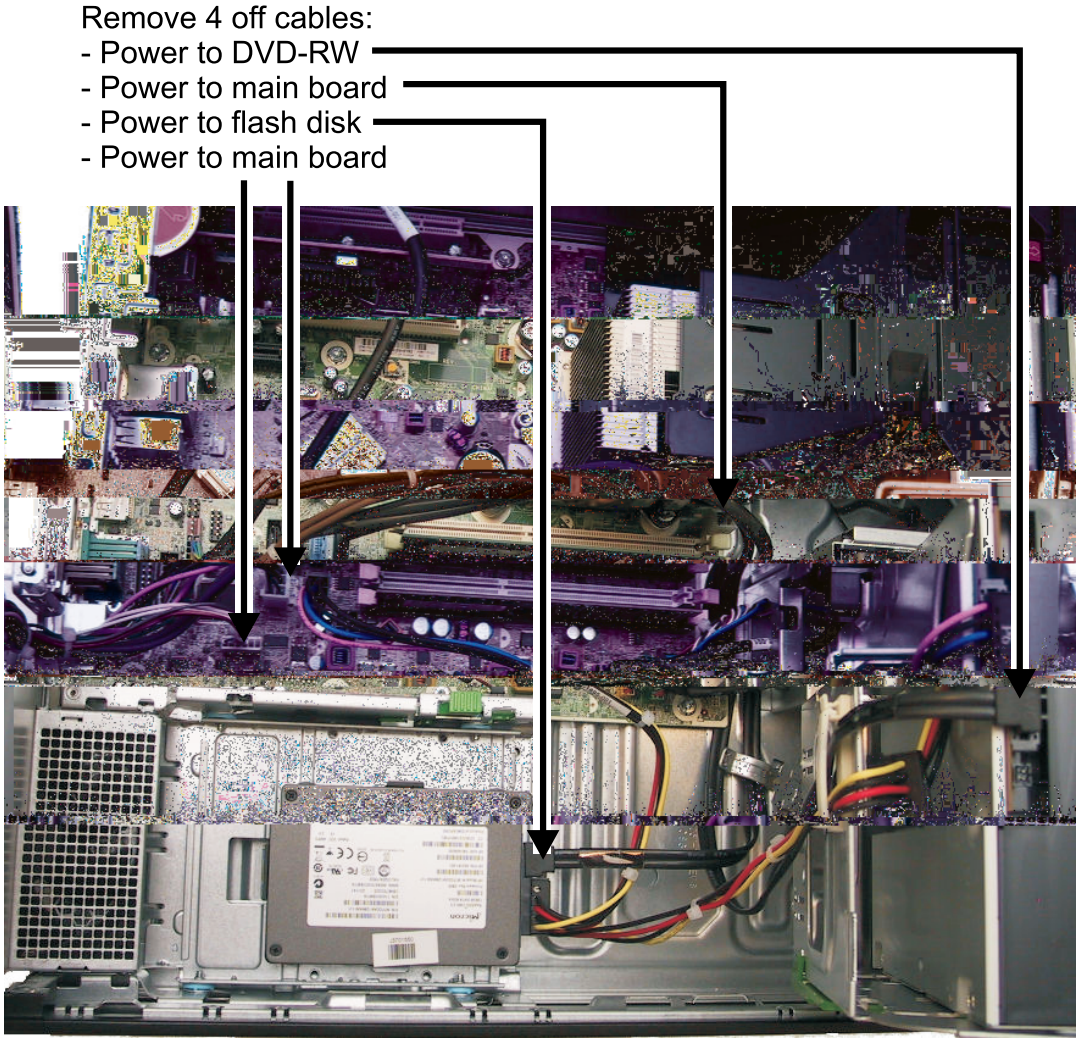
An error with the power supply module should be handled by Kongsberg Maritime Service Department only.

Disassembly

1 Tilt the power supply assembly and the DVD-RW



2 Disconnect 5 off power cables, refer to figure below:



(Cd090539b)

3 When cables are removed, slide the power supply module towards the flash disk and out of the computer chassis by lifting upwards.

4 If necessary, use a cutter to remove the strips that keep the cable bundles together.

5 Mark the power supply module with a label describing the symptoms observed, carefully pack in a shielding bag and place on a secure place.

Reassembly

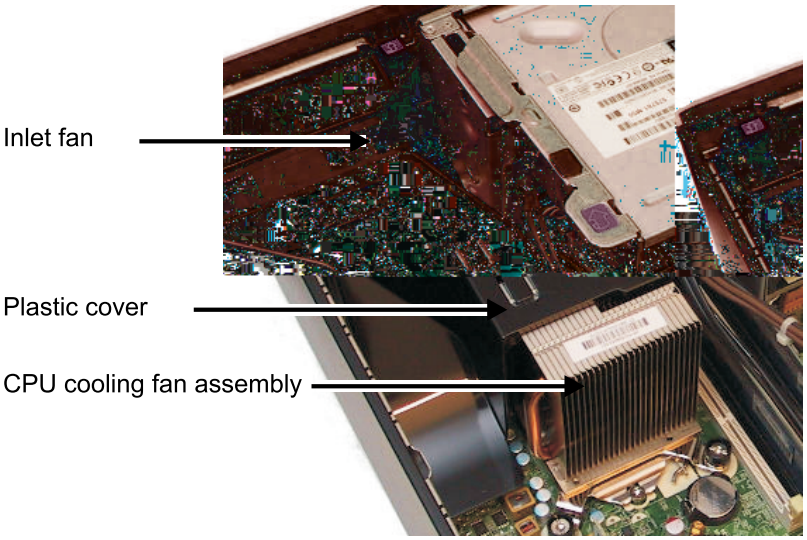
1 Reassemble by performing step 1 to 4 of the *Disassembly* procedure, in reverse order.

2 Verify proper operation of the MP8200.

+ R ZW R U H S O D W K H 3 8 F R R O L D Q J

The following steps must have been performed before performing this procedure:

- The power to the MP8200 computer must have been turned off.
- Check that the new fan is equal to the one listed in recommended consumable spare part list.
- The kit must have been removed from the computer, as described in *How to remove MP8200 computer from Damper kit* on page 19.
- The cabinet lid must have been removed from the computer, as described in *How to remove computer lid* on page 21.
- The Plastic cover, covering the inlet fan must have been removed from inside the computer.



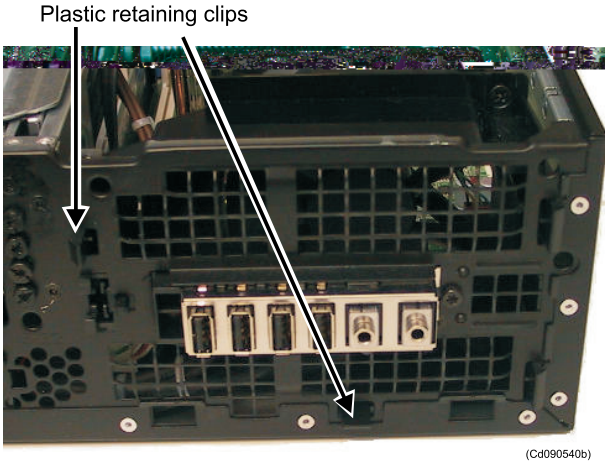
(Cd090540a)

CPU fan

Disassembly

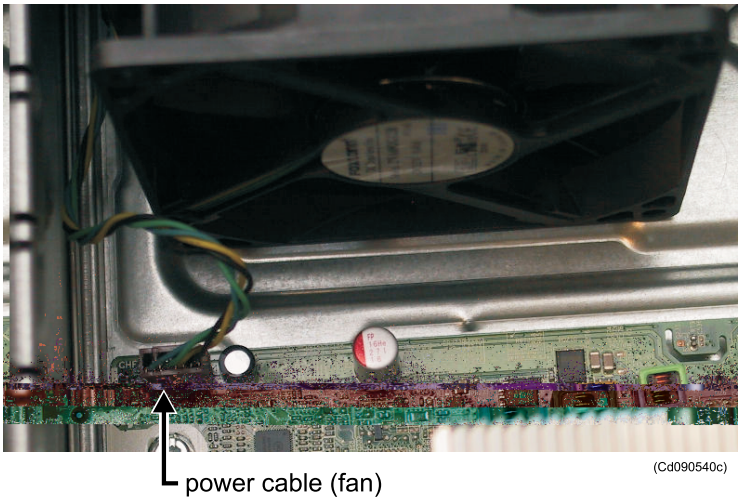
1 Locate the CPU fan inside the computer and remove the plastic cover.

From outside of the computer, press the plastic retaining clips to release.



2 Lift the fan assembly carefully out of the computer.

3 Disconnect the power cable for the CPU fan (located on the motherboard).



4 Mark the CPU fan with a label describing the symptoms observed, carefully pack in a shielding bag and place on a secure place.

Reassembly

1 Connect the power cable to the connector located on the motherboard of the computer.

2 From the outside of the computer, screw the inlet fan to the computer by using the 4 off screws, one in each corner of the fan.

3 Insert the plastic cover inside the computer, covering the inlet fan.

+ R Z W R U H S O D F H W K H 3 8

1 R W H

Any fault with the CPU should be handled by Kongsberg Maritime Service Department.

+ R Z W R U H S O D F H W K H D L Q % R D U G

1 R W H

Any fault with the main board should be handled by Kongsberg Maritime Service Department.

+ R Z W R U H S O D F H W K H X L L O W Q S H D N H U

1 R W H

Any fault with the built-in speaker should be handled by Kongsberg Maritime Service Department.

+ R Z W R U H S O D F H W K H 3 F R P S X W H U F K D Q Q H O X H H D W F D U G Z L W K Q H Z 0 3 F R P S X W H U F K D Q Q H O X H 6 W R U P F D U G

The two computer types with Blue Heat cards are as follows:

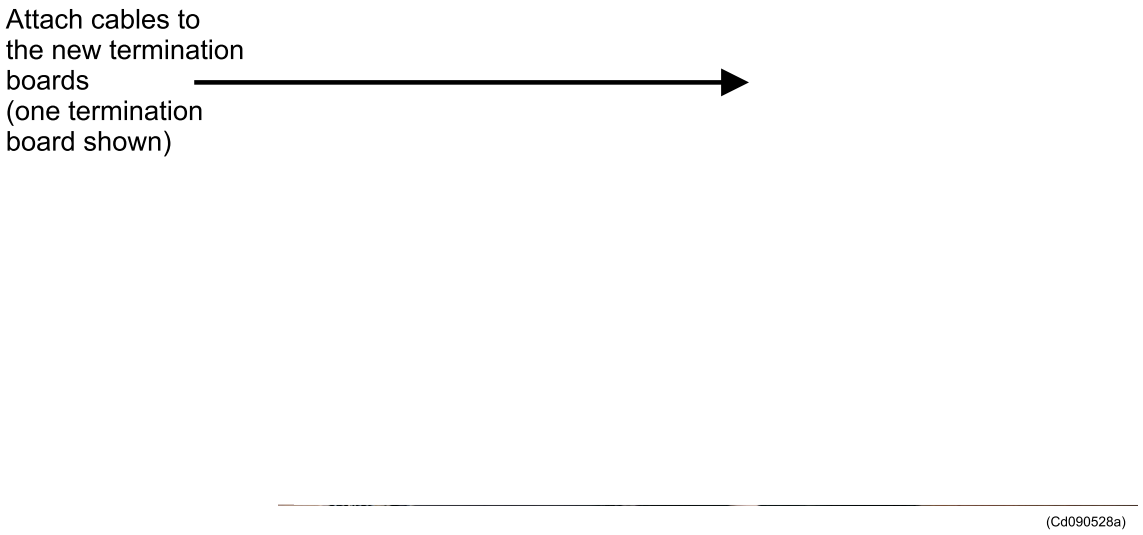
- MP7600 computer with 4 channel Blue Heat card (MP7600 w/4 ch.)
- MP7600 computer with 8 channel Blue Heat card (MP7600 w/8 ch.)

The following steps must have been done before performing this procedure:

- Ensure that the new termination board (green) is the correct type, and the correct number termination boards are available.
- The power to the MP7600 computer must have been turned off.

This is how a typical MP7600 w/4 ch. looks like inside the cabinet, where channel 1 and 2 are for RS232 and channel 3 and 4 are for RS422/485 on the old grey termination board:

Figure 14 Typical MP8200 w/8 channel BlueStorm card (new terminal board)



12 If more termination boards are to be connected, perform steps 10 and forward.

13 Lay the split cables inside the cable tray and snap-on the cover.

14 If applicable, turn on power to the MP7600 computer and close the cabinet door.

1 R W H

See the document 365840, MP8200 Setup Procedure, for how to configure the serial line ports.

5 H S O D F H 3 D E O W V Q G & R Q V X P D E O H

This section contains lists of replaceable parts, recommended spare parts and consumables used in MP8200. Replacement procedures for the listed parts are mainly described in the Corrective maintenance chapter. No replacement procedures are normally supplied for the consumables.

5 H S O D F H E D V H D U W V Q G H F R P P H Q G H G V S D U H D U W V

The table shows replaceable basic parts and recommended spare parts for the computer.

List Ident.	Part Name	Recommended as Spare Part	Part Number
1	Power Supply Unit	X	368464
2	Motherboard		368463
3	HDD Western Digital Scorpio Black 500GB 2,5" SATA 3GB/s 16M used as data storage in HS/DP Recorder	X	367527
4	HDD Western Scorpio Black 750GB used as data storage in the MP8200H model	X	369373
5	System disc: MICRON C400 128GB 2,5" SSD	X	367360
6	16 x DVD-RW drive		368465
7	Memory, 2GB, PC3–10600, DDR3–1333MHz	X	368468
8	Processor heat sink assembly		368462
9	CPU Intel Core i5–2400 64 bit Quad C.3.1 GHz		368466
10	HP Parallel Port Adapter		328805
11	HP NC360T PCIe Dual Port Gigabit Server Adapter 10/100/1000 Mbps		367535
12	Serial Port 2ND		328815
13	2-screen graphic card; Matrox Millenium P690 LP PCI x16, P69–MDDE128LPF (for NAV model)		328825

List Ident.	Part Name	Recommended as Spare Part	Part Number
14	MATROX Quad Graphic Card M9148 LP PCIe x 16		367536
15	MATROX EXTIO F2408E PCIe Fibre Interface Card, XT02A-FESLPAF		367537
16	RIC2 Card, low profile (optional for MP8200 NAV)		6200455
17	Drive Module for two 2.5” sata HDD, ST-2221SATA		328831
18	Display port adapter: HP DisplayPort To DVI-D Adapter, KV902AV		328832
19	Serial interface; BlueStorm /LP Universal PCI serial card; 8 ports switchable RS232/422/485. BLG041–01		337533
20	LAN Kit MP7900 LAN/CAN model		357584
21	MATROX EXTIO F2808 without LAN CARD		367533

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List Ident.	Part Name	Recommended as Spare Part	Part Number
1	Filter for MP8200 computer, for LAN/CAN model	X	365703
2	XP image		367541

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