KONGSBERG

Setup and Test procedure Control Processor PP43x/05x CompactPCI

Product: *Produkt:*	EM 710 , EM 122 , EM 302 , EM 2040 , ME70/BO					
Product reg.no: *Produkt reg.nr:*	337875 EM 2040 340369 EM 710/122/302, ME70/BO 371852 EM 122		*Created by:* *Laget av:*		THBK	
Doc.reg.no: *Dokument reg.nr:*	337876		*Controlled by:* *Sjekket av:*		KTU	
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Revision: *Revisjon:*	**A**	**B**	**C**	**D**	**E**	**F**
Date: *ato:*	28.01.2010	11.05.2010	17.01.2013			

Contents

1 DOCUMENT HISTORY

Rev	*Date*	*Description*	*Change number*
A	28.01.2010	This is the first issue	
B	11.05.2010	ME70/BO added	
C	17.01.2013	Added new CPU board for EM 122 and specified correct labeling of CPU boards. New setup procedure for VxWorks. Added new PMC module for RS 422 379534	

2 ASSEMBLE THE CPU BOARD

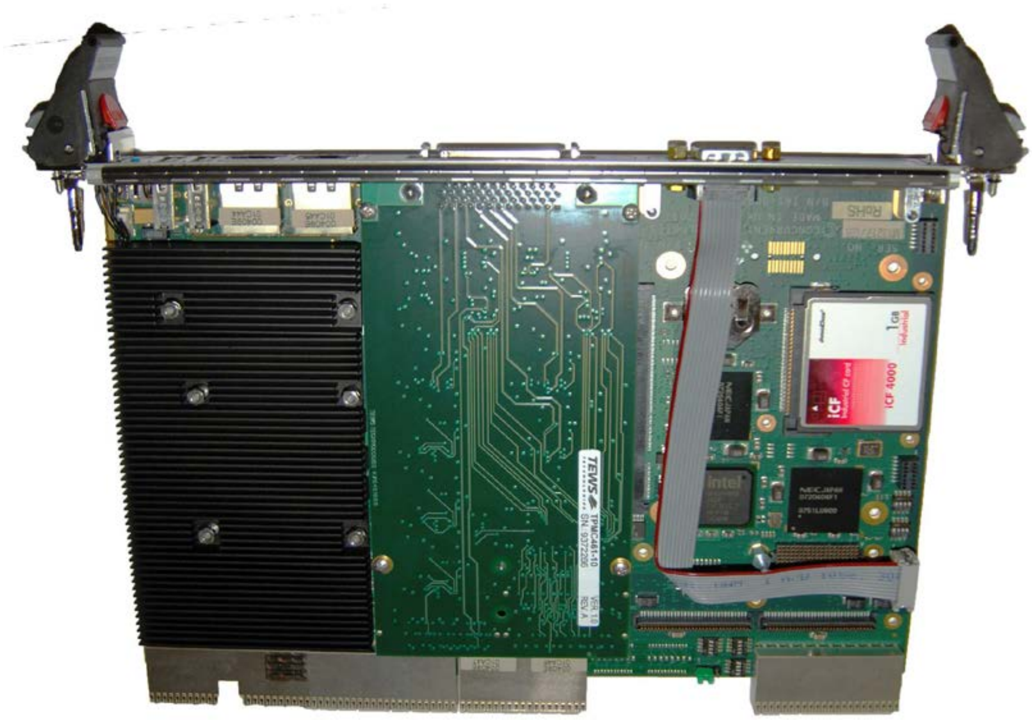
The CPU Boards are assembled either for EM 2040, EM 122/ 302/ 710, ME70/BO.

Mount as follows:

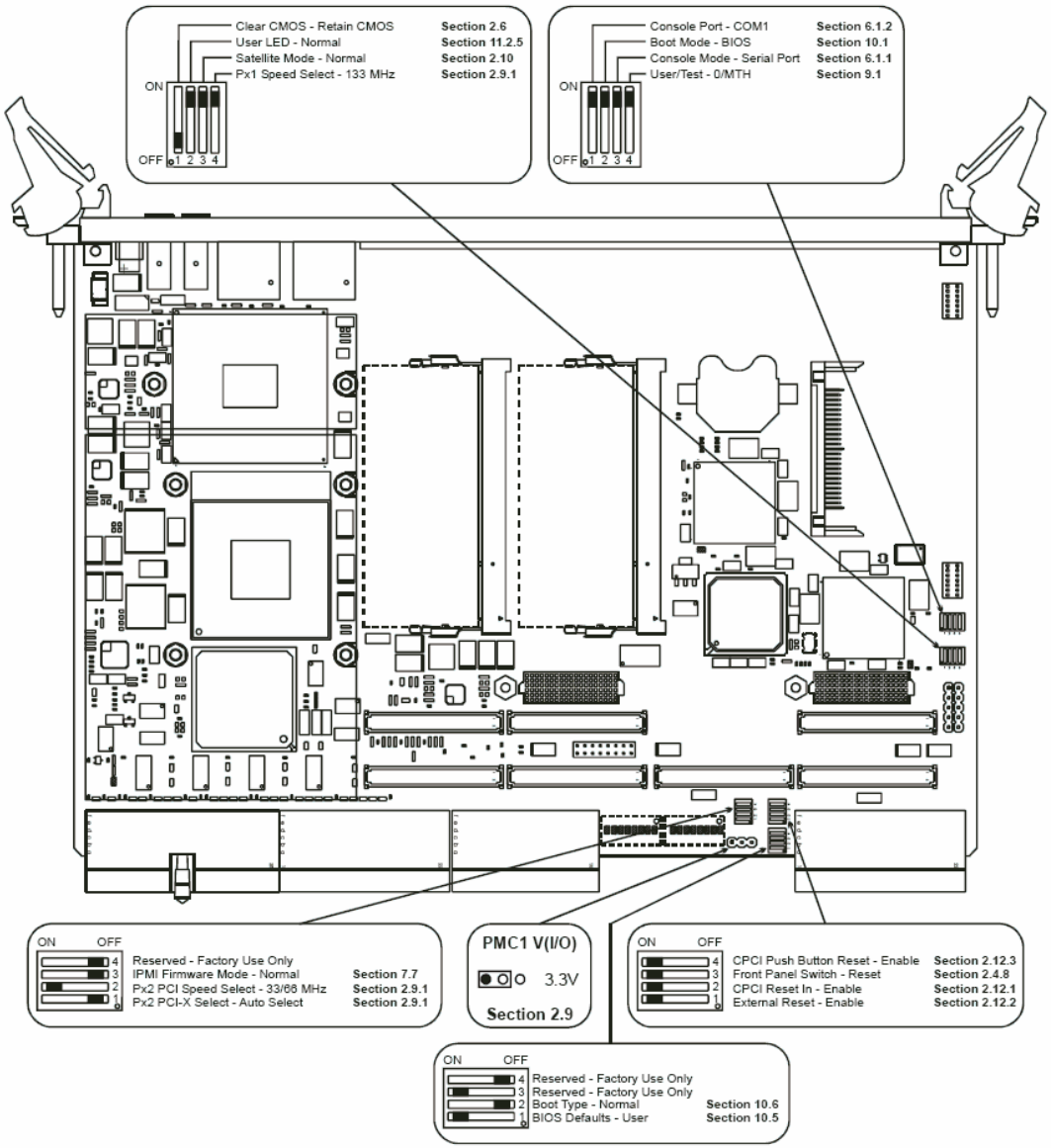
- 339045, PMC Module TPMC461-10R 8ch RS232 or
  379534, PMC Module TPMC 465 8ch RS232/RS422,
  for EM 122/302/710, ME70/BO
- 326637, PMC Module TPMC467-10R 8ch RS232, for EM 2040
- 337631, ICF4000 CompactFlash 1GB, for all CPU Boards.
- 338301, Front Panel Console EMx
- 338206, Cable Console Concurrent CPU EMx
- 379-057964/--MUTTER (F/D-CON.) AMP 205817-1
- Print the “New CPU Warning” page and attach to the assembled CPU board
- Label the CPU board with the correct system name. Use transparent dymo and mount on the free space on console front panel. Use EM 122, EM 302, EM 710, EM 2040 or ME70/BO.

EM 122 , 302 , 710, ME70/BO

EM 2040



Default Jumper and Switch Settings



3 GENERAL.

This test will take care of the fully populated PCB. The PCB will be tested in a TRU test rack.

4 REFERENCES.

CPU fully populated EM 302/710/ME70/BO 340369

CPU fully populated EM 2040 337875

CPU fully populated EM 122 371852

5 TEST EQUIPMENT.

Test equipment			
		Series number	*Calibration expiry date*
1	EMx TRU	NA	NA
2	HWS1X	NA	NA

6 TEST PROCEDURE.

6.1 VISUAL INSPECTION.

Check work performance.

6.2 ELECTRICAL TEST

Insert the board in a TRU rack.

6.2.1 BIOS SETTINGS

6.2.1.1 Main

Date

Time

SATA PORT 0: [None]

SATA PORT 1: [InnoDisk Corp. - iCF4000-]

SATA PORT 2: [None]

SATA PORT 3: [None]

POST Errors Disabled

System Memory 633 KB

Extended Memory 2046 MB

Boot Features

Delay Before Boot: [Disabled]

Summary Screen: [Disabled]

Extended Memory Test: [Quick]

Quick Boot Mode: [Disabled]

Option ROM Loading: [Load All]

PXE Boot Firmware: [Disabled]

NumLock: [On]

Serial Console Baud Rate: [9600]

Auto-retry On Boot Fail: [Disabled]

Invalid Date/Time Message: [Enabled]

6.2.1.2 Advanced

CPU Operating Frequency: [Full Speed]

Discrete MTRR Allocation [Disabled]

Processor Power Management [Enabled]

Core Multi-Processing: [Enabled]

C Stat Support [Enabled]

Numbers of Stop Grant [Per Core]

6.2.1.3 Boot

Boot Priority Order:

1: USB FDC

2: USB KEY

3: USB CDROM

4: IDE CD

5: IDE HDD: InnoDisk Corp. – iCF4000-

6: PCI SCSI

7: PCI BEV

8:

Excluded from boot order:

: USB HDD:

: USB ZIP:

: USB LS120:

: Other USB:

: PCI:

: UNKNOWN:

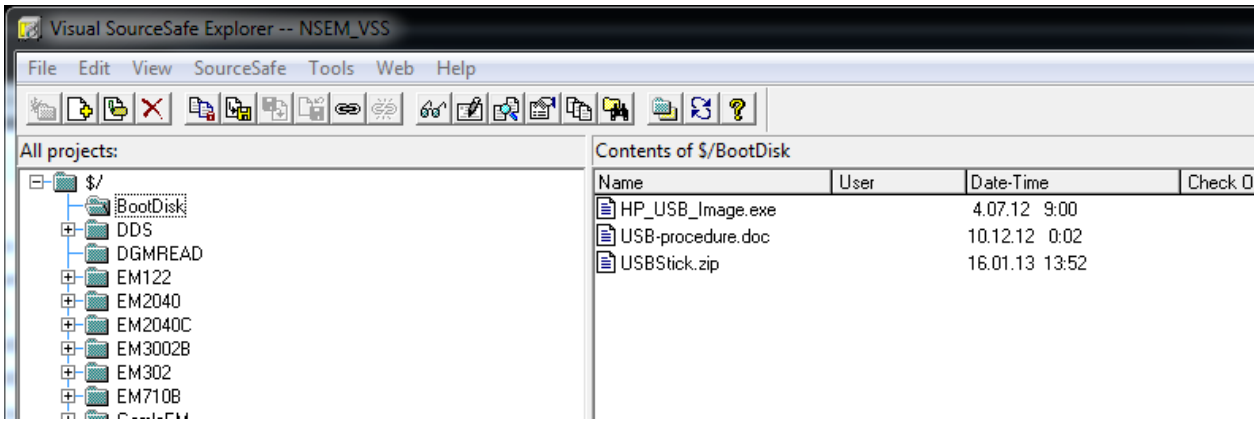
6.2.2 Installing VxWorks

6.2.2.1 Make a bootable USB stick with installation-scripts

This will prepare a USB-stick that is suitable for setting up Kontron CP 6011, Concurrent PP 432 and PP 833 with Vxworks and boot environment for the EM multibeams and the ME70BO.

Get files to local computer from Visual Source Safe or \\ROMEO\ADM_AVD\HYDR\SOFTARKIV\BootCD_Multibeam\USB_Stick\.

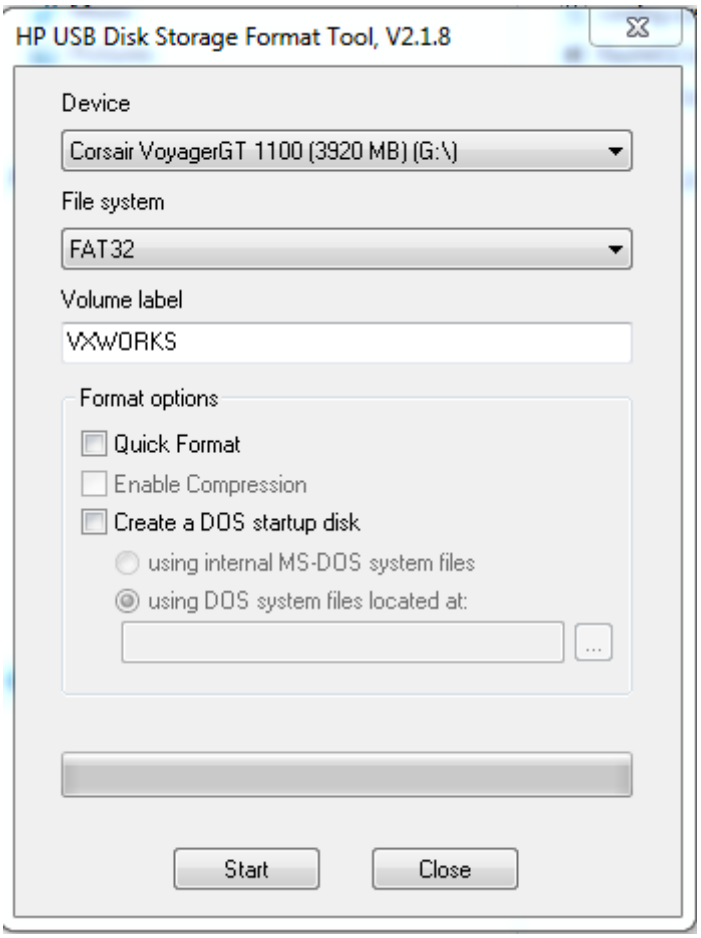
Source safe repository is found :



The file set contains this description, The HP USB Disk Storage Tool installer and the USB file tree packed as a ZIP-file. The reason for the ZIP file is hidden system files that cannot be transferred to Visual Source Safe.

If not already installed, install HP USB Disk Storage Format Tool using the exe-file (HP_USB_Image.exe).

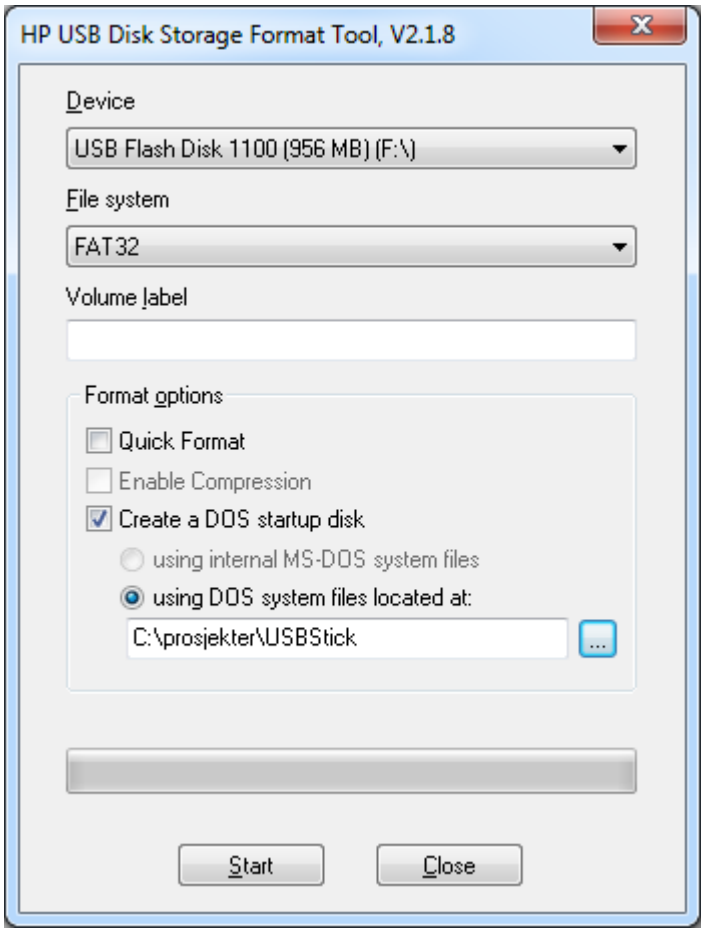
Start HP USB Disk Storage Format Tool and format a USB stick for use.



After the format is finished, extract the files from USBStick.zip to a convenient local directory.

The ZIP file contains the DOS-system files needed to make the USB stick bootable (MSDOS.SYS, IO.SYS and COMMAND.COM).

In the USB Tool navigate to the USBStick directory to get the DOS system files.

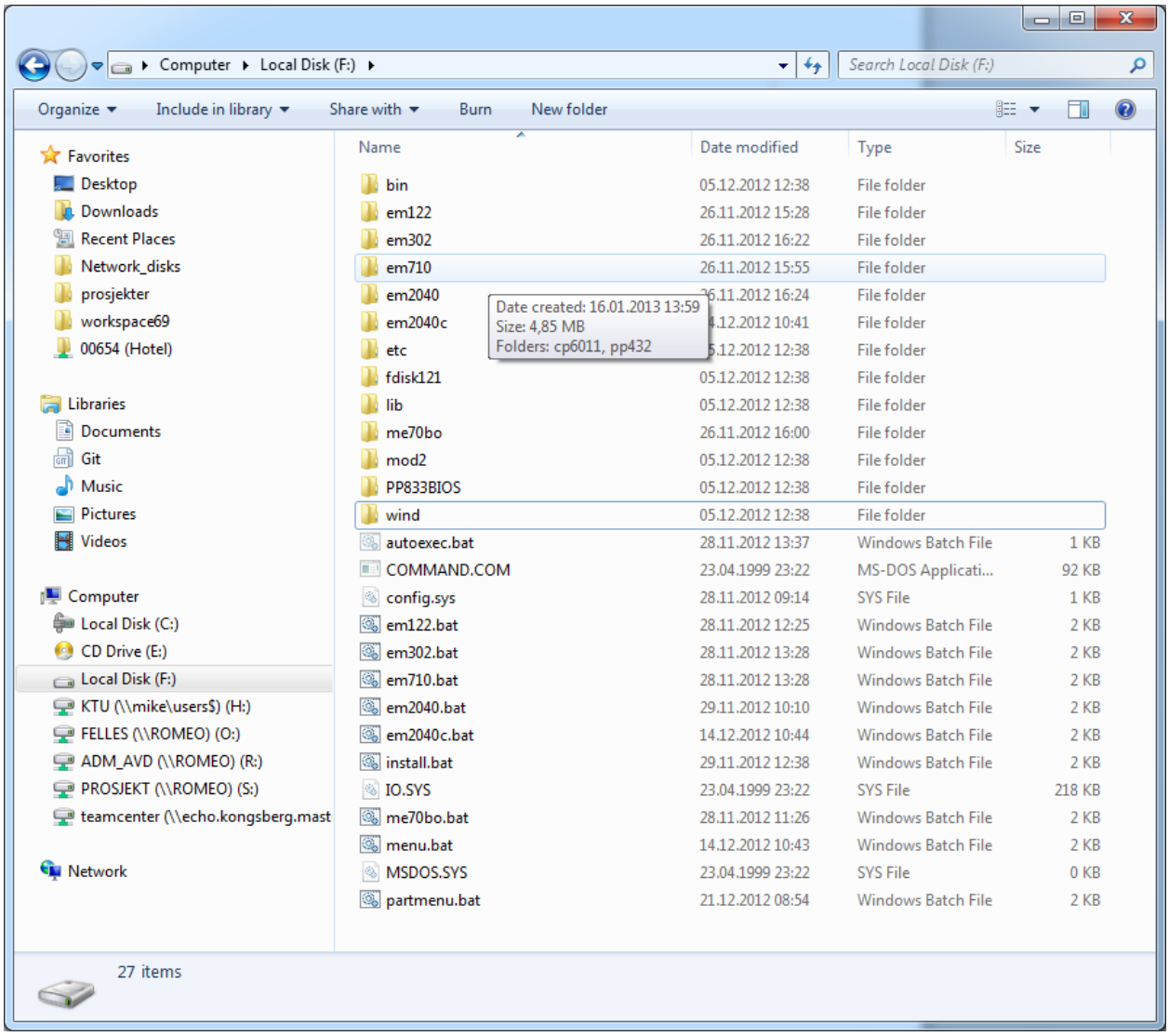


Press start to create a bootable USB-stick.

To make the USB-stick complete, copy the rest of the files to the root directory of the USB disk using Explorer.

NOTE : DO NOT COPY THE FILES COMMAND.COM, IO.SYS AND MSDOS.SYS

The disk will look like this.



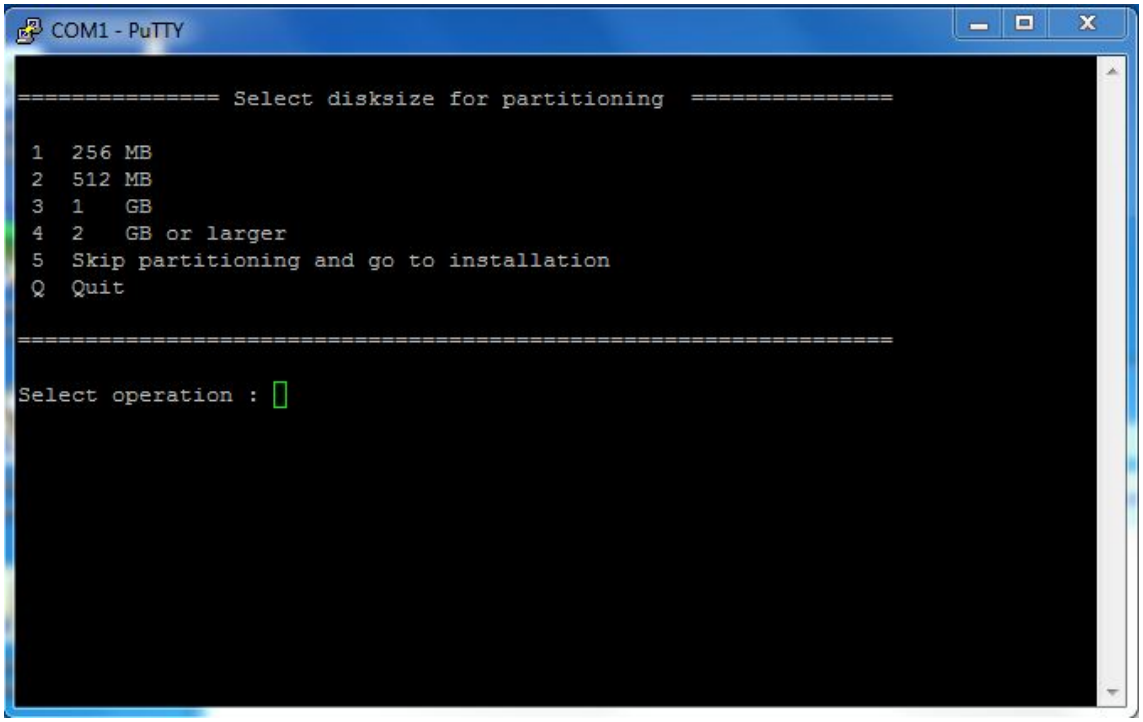
6.2.2.2 Installing VxWorks and preparing a CPU board for running as an EM system

Once the USB stick is set up, it is ready to use for initialising CPU boards.

When the CPU board is mounted in a rack, attach a console. Depending on the CPU type this can be either a monitor and a keyboard or a serial attached PC with a terminal emualtor.

Plug the USB stick into a free USB port and power up. If not already done - run BIOS setup to ensure that the USB stick is the first boot device for the system.

When the boot sequence is finished the following menu will be presented :



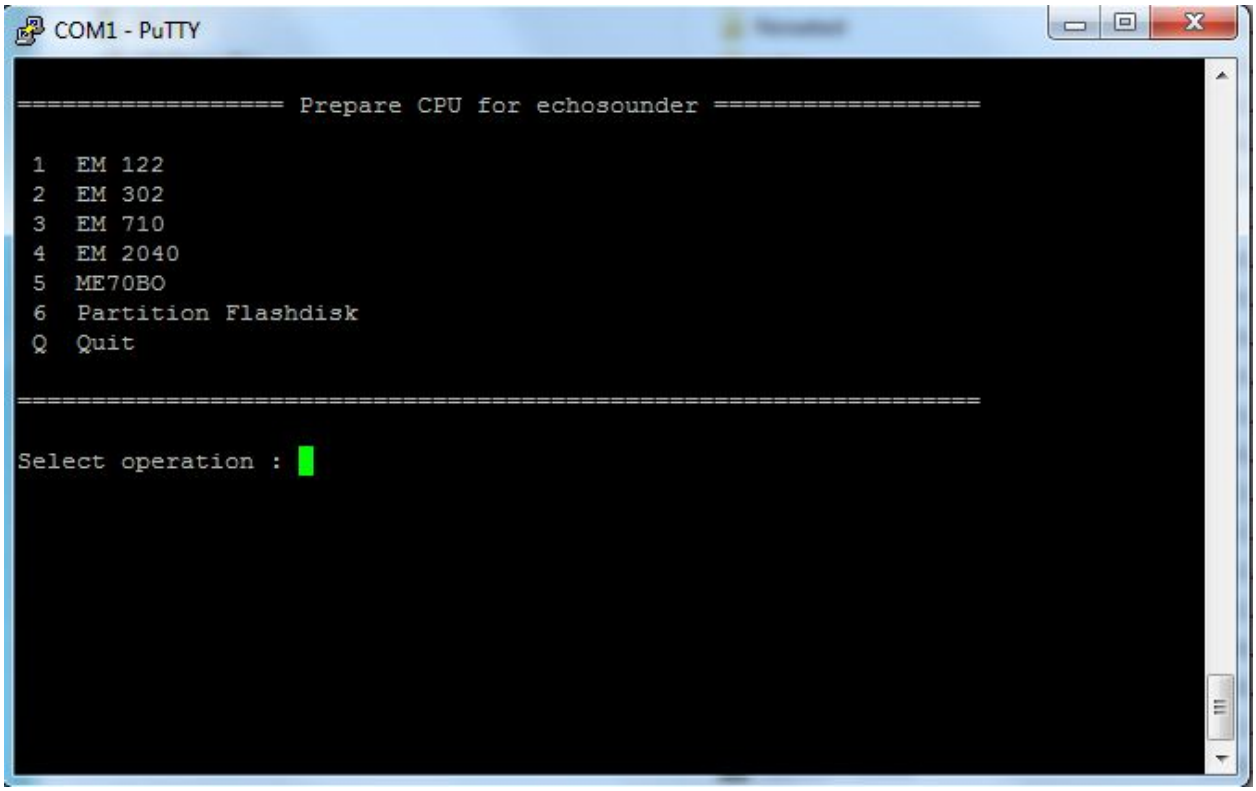
Select from the menu based on the size of the onboard CompactFlash.

After selection the procedure will ask for confirmation :

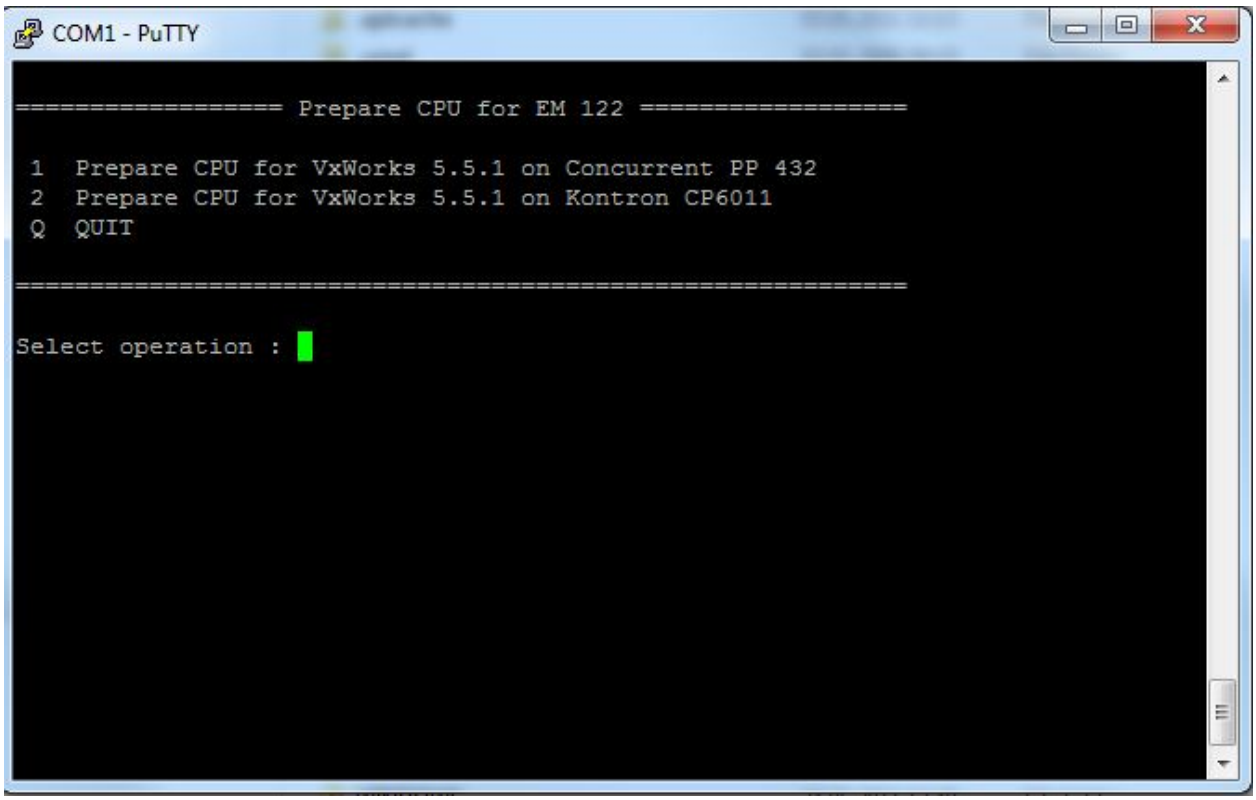
Ready to partition Flashdisk [Y/N] ?

Press Y to continue

Reboot is needed after partitioning, after reboot a new menu will be presented.

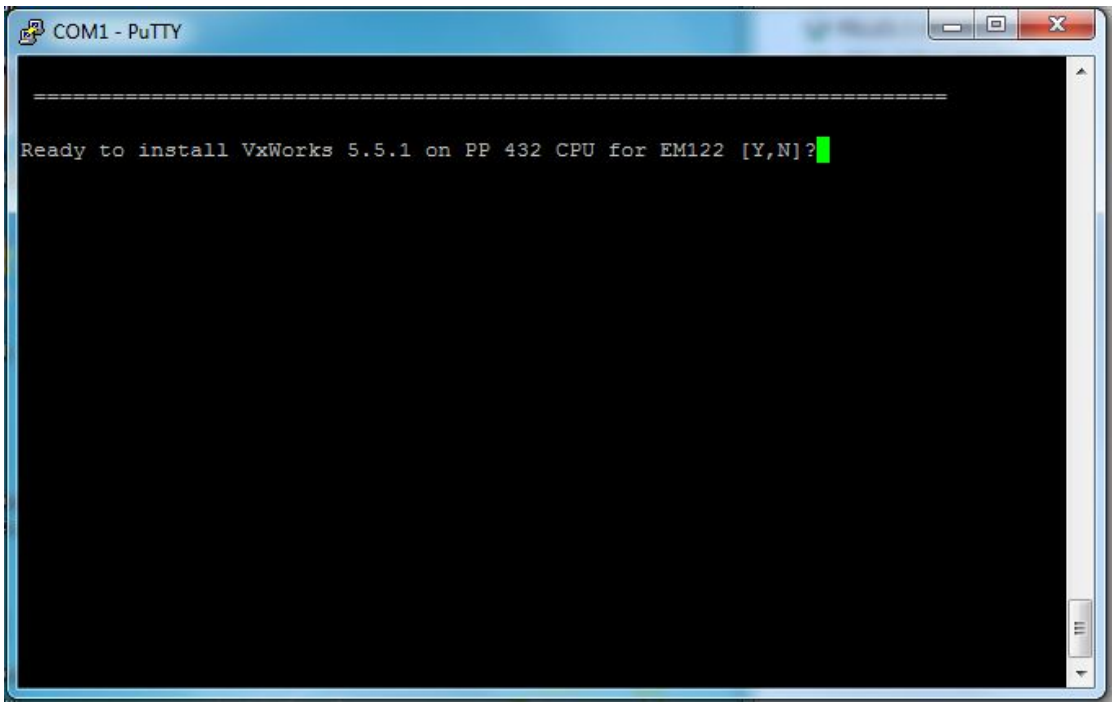


From the menu select operation, in this example **1 EM 122** is shown.

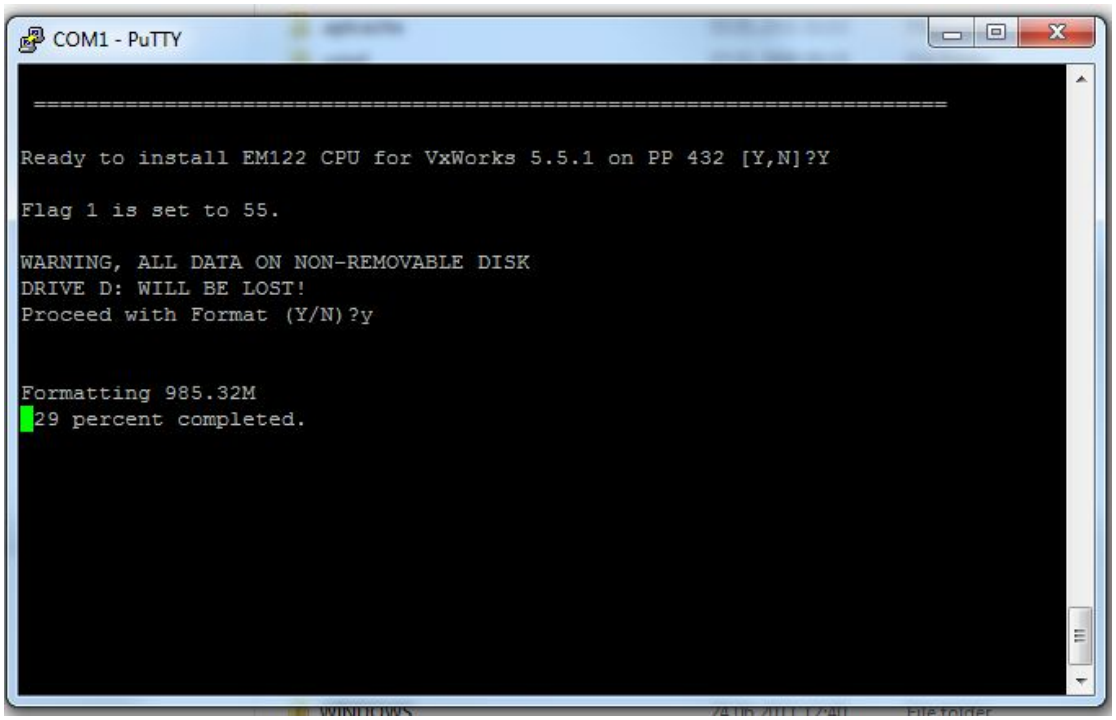


Two possible configurations are available.

Select the target CPU here, example below is for Concurrent PP 432.



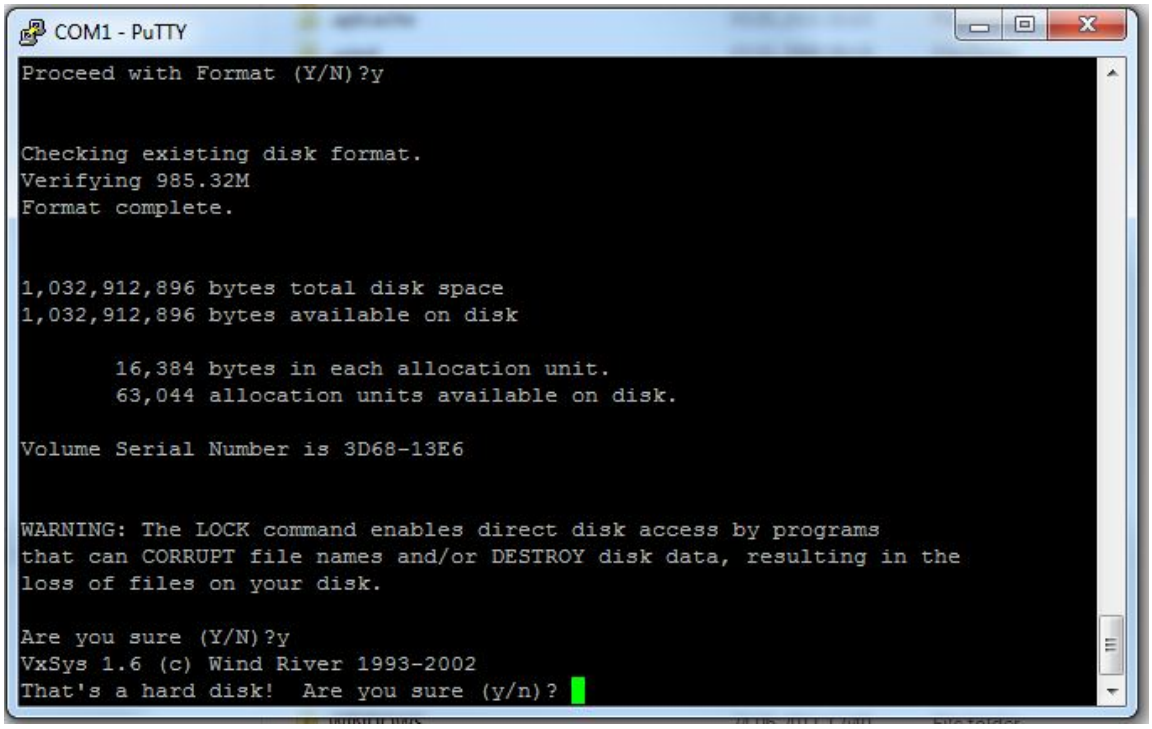
Press Y to continue formatting the Flashdisk.



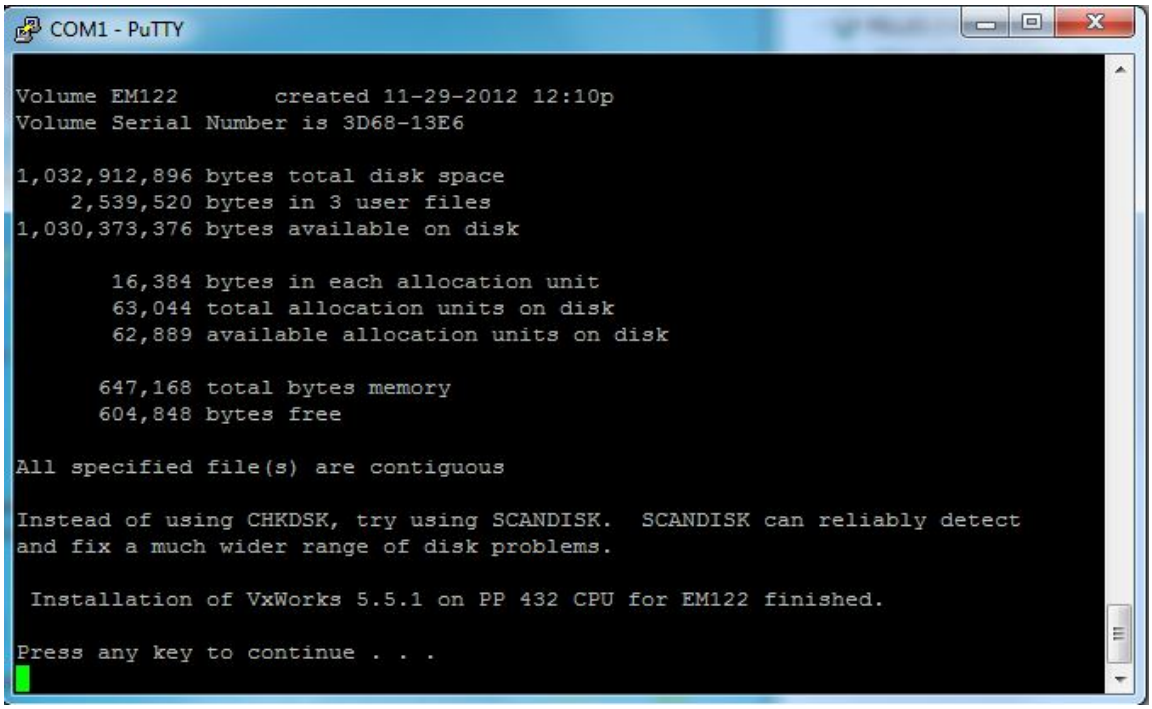
Once the formatting is finished, the disk must be prepared for booting VxWorks.

The disk must be locked for direct write, press Y to confirm the operation.

Also press Y to transfer the master boot record for VxWorks boot.



After this operation the rest of the system files are copied to the Flashdisk.



Once this operation is finished the USB stick must be removed, and the system must be rebooted to transfer the rest of the echosounder installation.

This installation set up the standard IP address for the target system:

inet on internet (e)	: 157.237.2.71	EM 710
inet on internet (e)	: 157.237.14.60	EM 302/EM 122
inet on internet (e)	: 157.237.60.157:0xffffff00	ME 70 BO
inet on internet (e)	: 157.237.20.40	EM 2040

The CPU is ready for installation of EM software over network.

6.2.3 Check serial-lines

Start TRU, HWS1X and Test PC. Run WinSim on Test PC:

Simulator WinSim: R:\hydr\WinSim\WinSim.exe.

Connect serial-line (RS 232) from Test PC with crossed cable to Serial Ports 1.

Start telnet window (telnet 157.237.2.61) and write:

serialTest <baud rate>, <key stop>

Run test of serial lines with given baud rates, if baud rates = 0, 9600 will be used.

Input from serial lines will be written to screen.

Input must be NMEA format ASCII.

If key stop! = 0 would not Q-key stop the test.

Check all serial ports (except spare).

6.2.4 Check Ethernets

Connect Ethernet 1 and 2 from TRU and Ethernet from HWS1X to a switch box.

Start telnet window and write:

networkTest

Run loop back test on network. 5 packages are sending from Ethernet 1 to Ethernet 2.

After that 5 packages are sending from Ethernet 2 to Ethernet 1.

For each package the contents are written before sending and after receiving.

6.2.5 Run all BIST tests from HWS1X.

6.2.6 Trig in. (Not applicable for ME 70 BO)

Set to External Trigging in Installation Parameters. Connect a link from pin 7 to 8 in TRIG IN/OUT plug. Start pinging. Check that pinging starts. Remove the link and check that pinging stops.

6.2.7 1PPS input.

Connect position simulator to serial port 1 and set to GGA and ZDA clock.

Connect a signal generator to a pulse generator, and pulse generator to input marked 1PPS.

Set signal generator output to 1.0 Hz.

Set pulse generator to 1 micro second pulse width and use TTL output.

Mark 1PPS field and clock source to external ZDA clock active in “Installation Parameters”. Check in numerical display that 1PPS is white (on).

6.2.8 TX trigger for ME 70 BO

Connect the trigger-input on pin 8 on serial port 5. The signal should be a 1 millisecond pulse, 5 V peak-to-peak, 1 Hz.

In a telnet window enter :

➔ seeTimeStamp=1

You should now see a printout for every pulse :

TimeStampDiff: 0.00

6.3 HEAT TEST

Run the board in heat room according to Kongsberg Maritime standard. Repeat 5.2.2 to 5.2.7 after heat test.

6.4 LABEL

Put on label(s)

7 COMMENTS.

8 CHECKLIST.

CHECKLIST	
Product: Control Processor (CPU) board	Reg. no: 337875, 340369, 371852 Ser. no. ……
Performed by (date/sign):	*Witnessed by (date/sign):*

Pos	*Test operation*	*Result*	*Specification*
5.1	Visual inspection		OK
5.2.1	Setup CPU		OK
5.2.2	Check serial-lines		OK
5.2.3	Check Ethernets		OK
5.2.4	Run all BIST from HWS1X		OK
5.2.5	Trig in		OK
5.2.6	1PPS input		OK
5.3	Heat test		OK
5.4	Label		OK

9 NEW CPU BOARD WARNING

Print the next page and put it together with the new CPU board.

Caution

There is a new type of CPU board:

- ***Concurrent Board –Part Number 340385/340384/340373/347496***

Note – Be sure to ALWAYS use Concurrent Rio Card with the Concurrent Board – see picture below.

- ***Rear I/O Concurrent Card – Part Number 334137***