



# **CC-1 Crystal Core**

Installation Guide

4th December 2006

Version 1.0

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# Setting up the Computer

Installation information is based on a Dell Precision™ 390 Workstation



## Hardware requirements

- Processor:** Intel Dual Core - 1866MHz (L1 cache: 32.0 Kb, L2 cache: 2.00 Mb, L3 cache: 0 Kb)  
Ext.clock: 1066 MHz - Intel® 975X Express chipset. ( Dell offers Dual-Core Intels on this system ranging from 1.86GHz à 2.93GHz )
- Bios:** Phoenix ROM BIOS PLUS – please use Version 1.10 1.0.5 (01-Sep-2006)
- Memory:** 2.00 Gb (2 095 124 Kb) 2 X 1024 Mb (DDR2, Synchronous, 1 MHz) EEC – unbuffered.
- Video 1:** NVIDIA GeForce 6600 (256.0 Mb) - Leadtek Research.
- Drivers:** ForceWare Release 90  
Version: 91.47  
Release Date: September 14, 2006  
WHQL Certified
- Video 2:** Matrox G550 PCI-Express x1, 32MB, DualHead, 2 x DVI. (required if DryIce embedded video option is chosen)
- Sound card:** SigmaTel High Definition Audio CODEC
- Network:** Broadcom NetXtreme 57xx Gigabit Controller
- OS:** Windows XP Professional English 5.1 (build 2600 Service Pack 2)



## Hard Drives

Your Fairlight CC-1 System should already have been configured according to the following:

The CD-ROM has been removed

Apart from the System Hard Drive, 3 extra SATA drives have been added to the system. 2 are used as **Audio Drives**, 1 is used as a **Video Drive**.

The 2 Audio Drives have been mounted using 2 Serial SATA 3.5" HD Mobile Racks & Removable Trays.  
*See photo.*

Please note that the external Dell **trimming** does not permit these drives to be removed.



We have used the following drives for this: Western Digital - MODEL: WD1500ADFD  
SATA Hard Drive / 150 GB, 1.5 Gb/s, 16 MB Cache, 10,000 RPM.

The Dell 390 has an Integrated SATA 3.0Gb/s controller with support for RAID 0, 1, and 5.

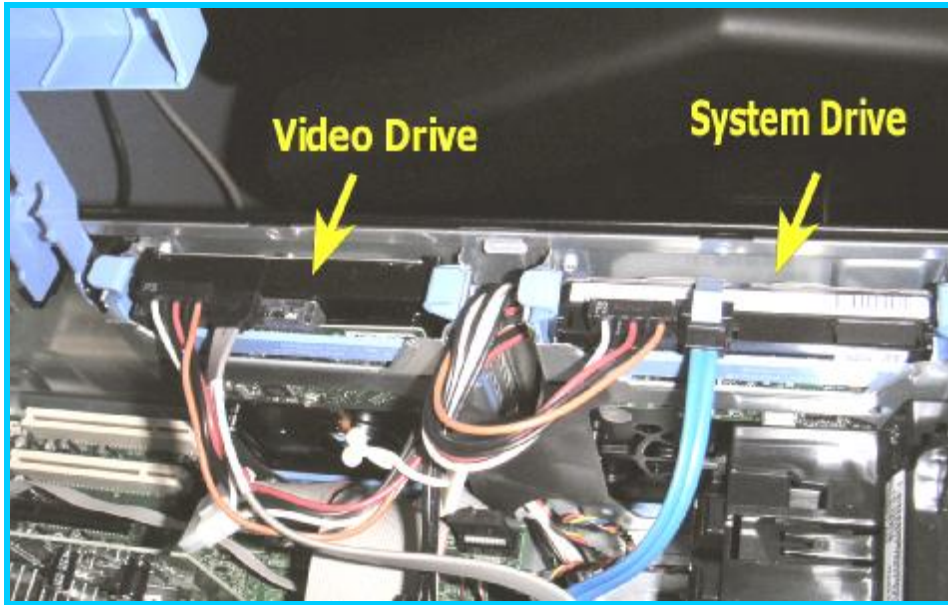
These 2 Audio drives have been set up as 2 striped drives – RAID 0, using Windows Drive manager.

BIOS settings must be set accordingly ... Please go into Bios Setup <F2>

- § Go to <Drives>
- § Please enable all SATA devices ( 0,1,2 & 3 ) Set to <ON>
- § Please disable all PATA devices ( 0 & 1 ) Set to <OFF>
- § For "SATA Operation" please set to <RAID Autodetect / ATA>
- § Smart reporting should be set to <OFF>

Please save these Bios settings and restart the computer.

An Additional drive for Video has been added in the Dell's secondary hard-drive bay (see below).



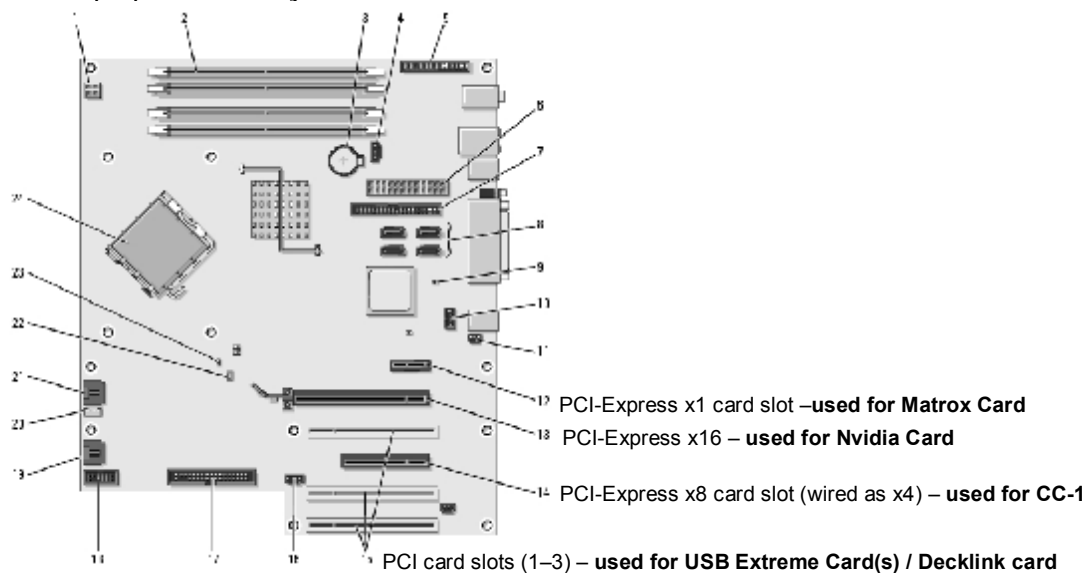
Any SATA hard drive may be used for this ... 7200 RPM or above. 8Mb cache minimum.

## System Board Components / Card Layout

The Dell™ computer provides the following slots for PCI and PCI Express cards:

- § Three PCI card slots
- § One PCI Express x16 card slot
- § One PCI Express x8 card slot (wired as x4)
- § One PCI Express x1 card slot

Here is the proposed card layout:



## Important

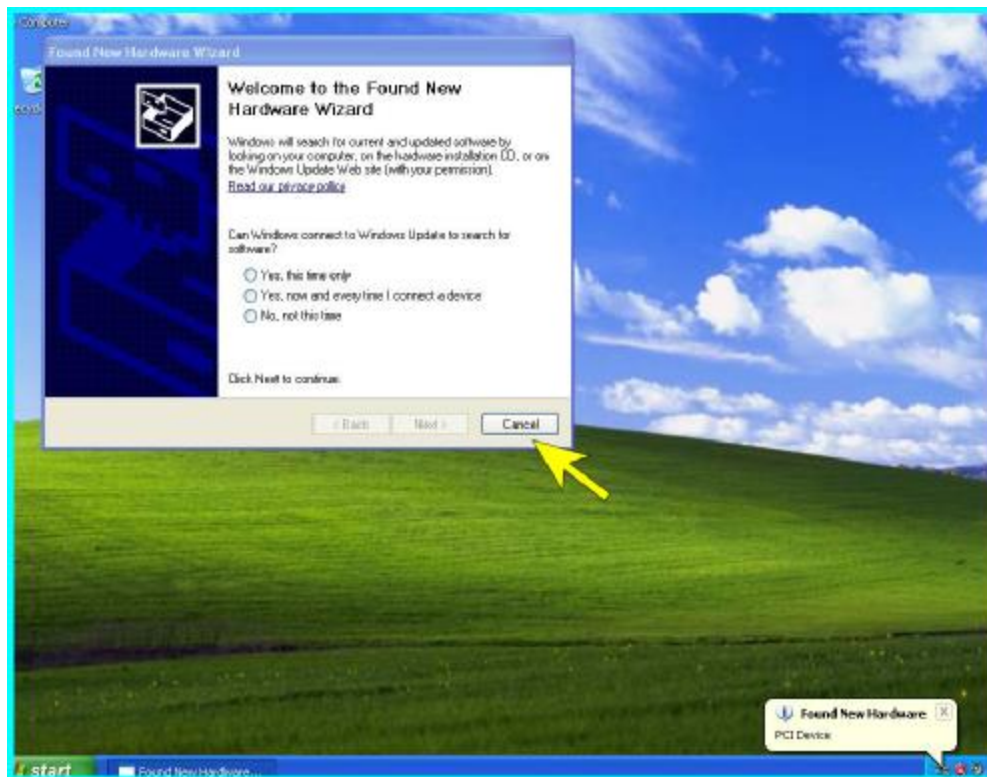
**DO NOT INSTALL** the CC-1 card until all other devices with their respective drivers are all properly installed, Bios is correctly upgraded, and the computer is running happily and strong.

Note: We have also observed that some "stock" DELL Windows XP installations require a **complete** XP re-install in order to correctly accept the CC-1 card. Please use the DELL reinstallation CD ... ; install required drivers ( Network card & Audio / Intel Chipset Software must be also installed )... update BIOS, and appropriate Nvidia and Matrox drivers before proceeding.

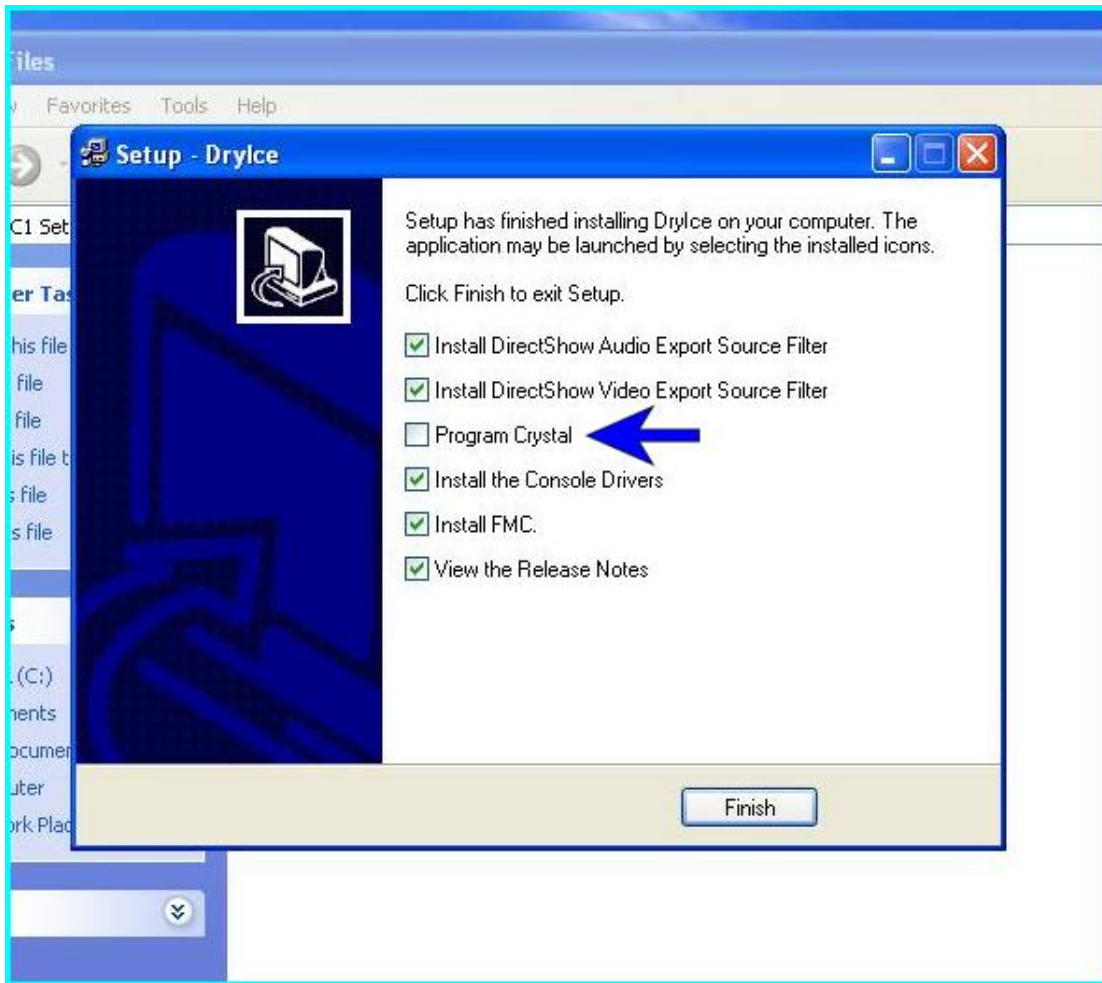
## CC-1 Card/Software installation:



- Step1           Shutdown the computer.
- Step2           Install the CC-1 card into the PCI-E ( 4 lane slot )
- Step3           Power on the computer.
- Step4           Windows will detect the card as a “default” à [PCI to PCI Bridge](#) ( Found new hardware PCI device ) and bring up the installation Wizard:
- Step5           Hit <Cancel>.



- Step6           Now install Dream\_II\_vxxxx\_setup.exe ( appropriate DREAM II installer ). Use all defaults. However, when you see the following page ... please untick <Program Crystal>.



Step7 Browse to Start/All Programs/Fairlight/Dream II/Dream II Utils/ ... and click on <Install Crystal Drivers>.



You will be prompted to add these components to the Windows registry. Click <Yes>



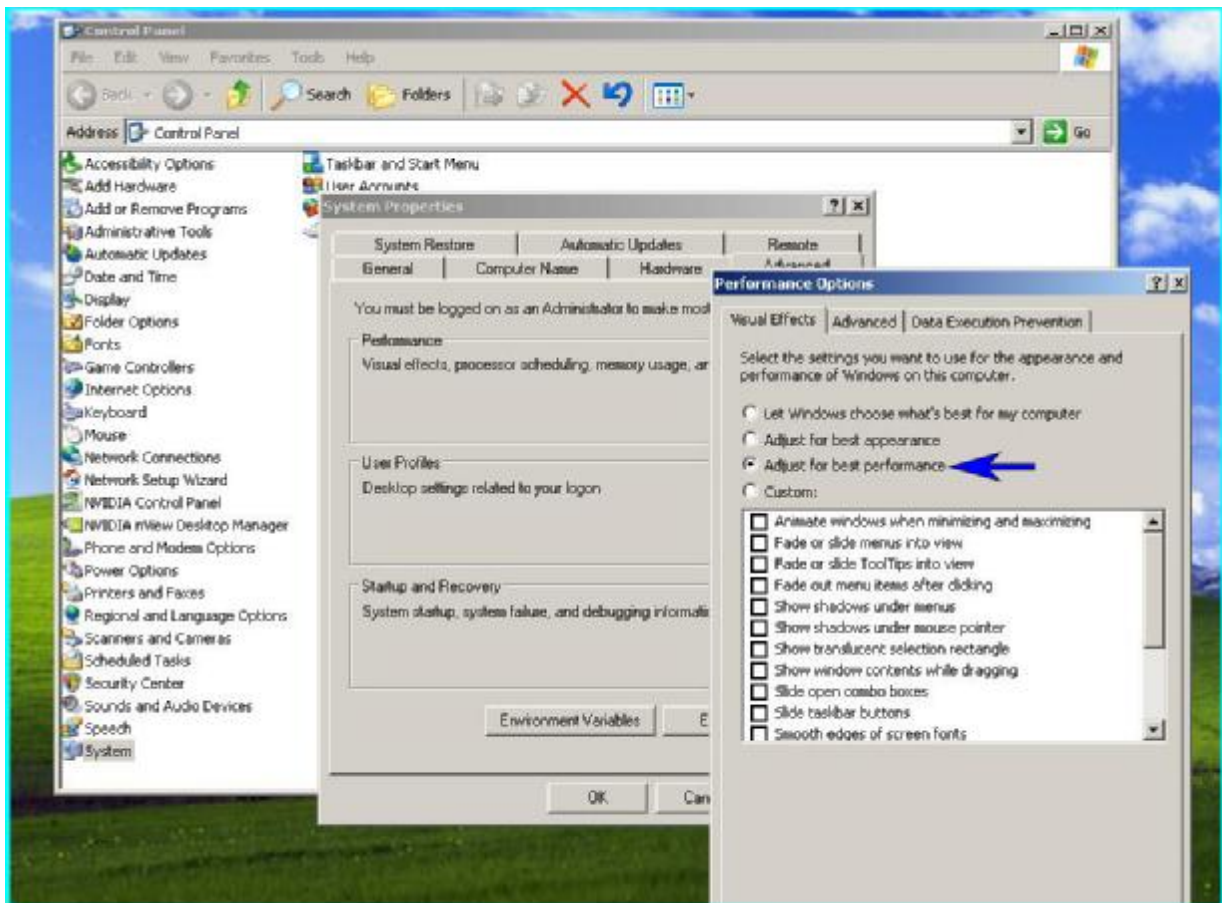
Step8 Browse to Start/All Programs/Fairlight/Dream II/Dream II Utils/ ... and click on <Program Crystal>. This will automatically “Flash” the CC-1 with the appropriate CORE.

This takes about 15-20 seconds. You will observe a “DOS” window displaying FLASH progress.



Step9 Turn off Windows visual effects ... Browse to à Control Panel/System Properties/Advanced/Performance/Visual Effects ... and Tick <Adjust for best performance>.

Confirm with <OK>.



- C:\WINDOWS\WinSxS

Step 10      **Only** If it is a full and clean install from “scratch” on the PC ... There is one more “manual” operation to do before you launch DRYICE for the first time.

Step 10      Please go to the FTP site and download the file **WinSXS.zip**.

Use the new DryIce ftp area at <ftp.fairlightau.com>:

Username=dryice

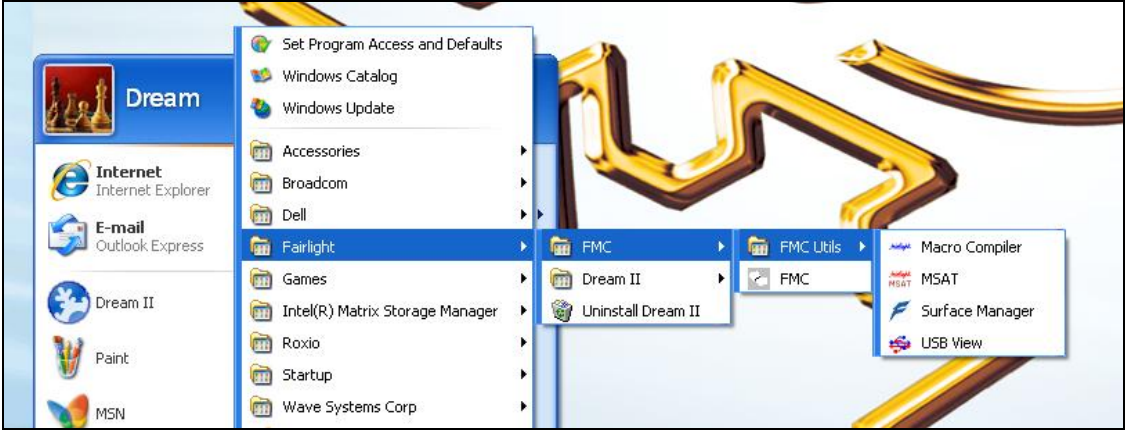
Password=snowflake

Please extract this file ( keeping the embedded tree structure ) to:

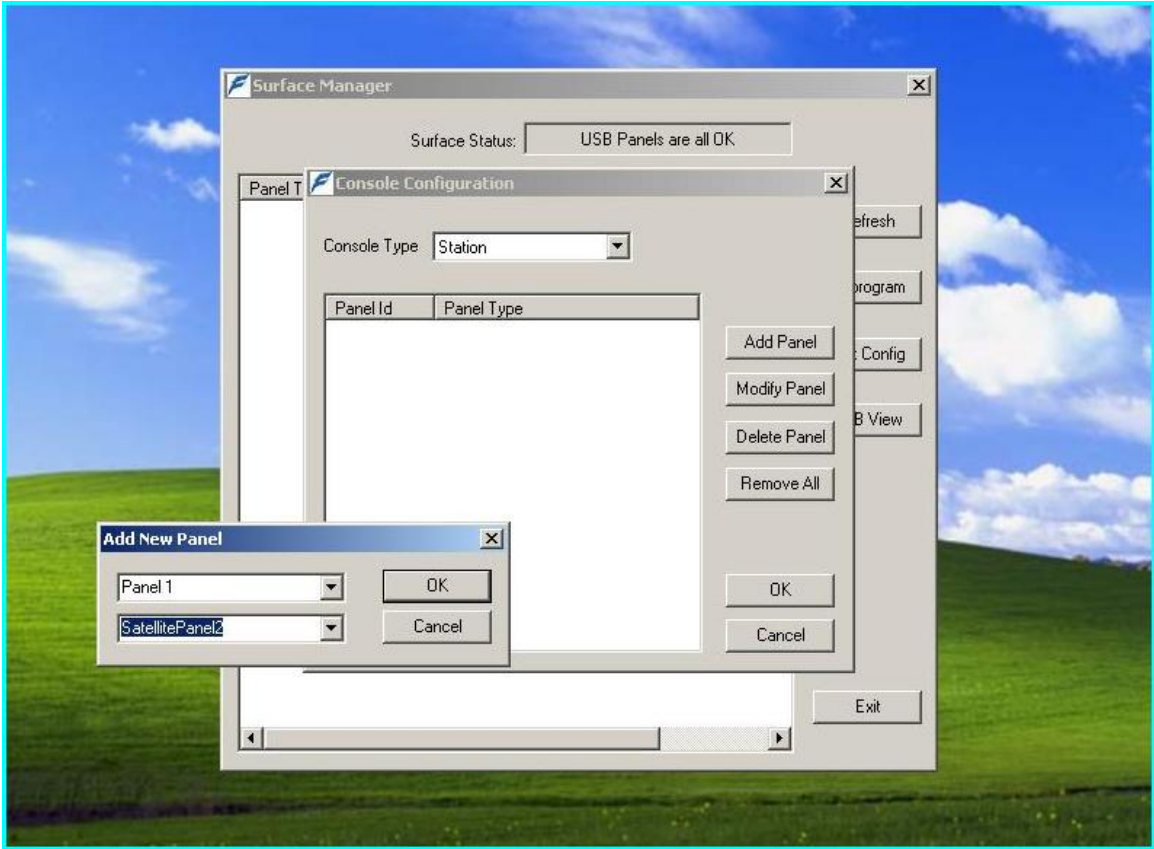
**C:\WINDOWS\WinSxS**

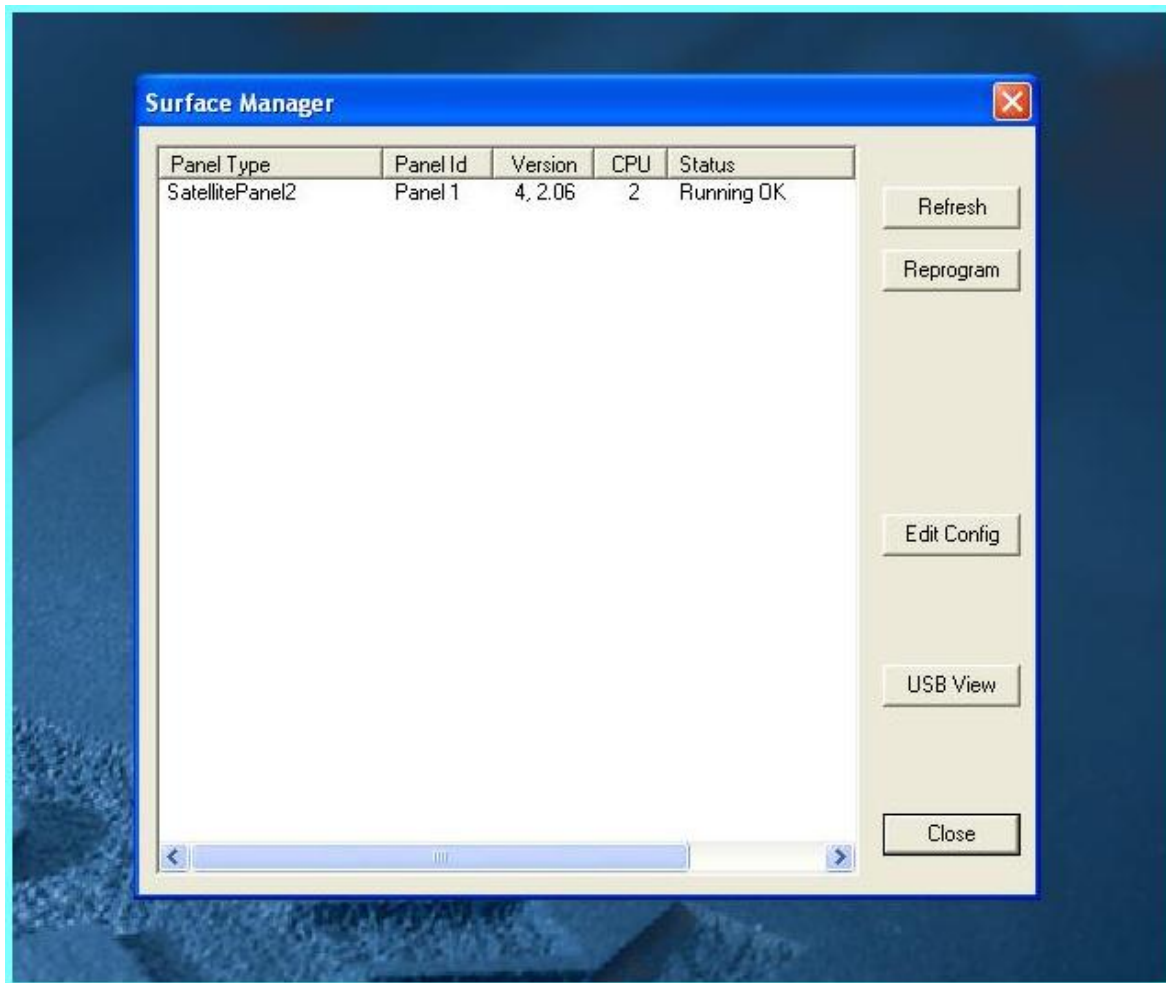
# Surface Setup

Step 1 Browse to: Start/All Programs/Fairlight/FMC/FMC Utils/Surface Manager



Step 2 Launch the application: This should look very familiar ... as this is now the equivalent to "DreamStart".





This is where you can set up your appropriate panels and surface types.

Step 3

Hit <Edit-Config> ... to start setting up your panels and surface type.

Please note that for **Satellite II** ... you should use Console type "Station" / Panel 1 / and "type" **SatellitePanel2** ... as seen above. If you see that the firmware for this Panel is "older" than 4,2.06 ( or if you get a firmware error ) please highlight the panel and <Reprogram> using the dedicated button. You can calibrate "as usual" <Shift-PauseBreak-C> once the application is up and running.

Please note that there is no longer a need to "Save" the configuration ! Surface setup using this new utility should be very straightforward **J**

# Setting Up Graphics/Displays

On a system that has been pre-configured by Fairlight, you should not have to change your graphics settings. But you will need to set up your graphics again if you change your screen settings or graphics card.

Some graphics caveats:

- § The graphics card must be 256 MB minimum.
- § The graphics card should be low profile, **or it will cover the adjacent PCIe slot ! USE THE CARD SUPPLIED BY FAIRLIGHT until further notice! See specs page1.**
- § The FMC screen **must** run on the low-res output at 16 bit color. This is typically the VGA connector on the NVidia card, or the BOTTOM DVI connector on the Matrox card.
- § The DryIce Screen must run on the hi-res output at 32 bit color. This is typically the DVI connector on the NVidia card. This DryIce Screen **always** needs to be the "Primary monitor".
- § Both screens must run at 1280 x 1024.
- § If you run the NVidia in horizontal span mode (for video screen), resolution must be 2560 x 1024. The DryIce "embedded" Video display is the VGA output on the NVidia
- § NVidia cards must see monitors ON POWER UP. Connecting monitors after power up, even followed by a restart, is pointless. Power down, connect, power up.

## Positioning the FMC screen

- Step 1 Make a **copy** of the existing - C:\Program Files\Fairlight\FMC\Data\System\_Variables.txt
- Step 2 Open C:\Program Files\Fairlight\FMC\Data\System\_Variables.txt in WordPad
- Step 3 Remove the lines 'WINDOW\_X1, WINDOW\_Y1, WINDOW\_X2,WINDOW\_Y2'
- Step 4 Change 'HAS\_FRAME' to 1
- Step 5 Save and close C:\Program Files\Fairlight\FMC\Data\System\_Variables.txt
- Step 6 Run up DryIce, which will start FMC.
- Step 7 Drag the FMC Window to the appropriate display in the correct position.
- Step 8 Click on FMC, then press <Shift+Pause/Break> followed by 'a'
- Step 9 Quit FMC.
- Step 10 Open C:\Program Files\Fairlight\FMC\Data\System\_Variables.txt in WordPad
- Step 11 Change 'HAS\_FRAME' to 0
- Step 12 Make sure 'SCREEN\_NUMBER' of FMC matches the number of your screen (as shown in Windows Display Properties). **\*\*Note\*\***: monitors in horizontal span mode are "seen" as a SINGLE monitor!
- Step 13 Save and close C:\Program Files\Fairlight\FMC\Data\System\_Variables.txt

We will work on streamlining this procedure. Keep in mind that you DO NOT have to do this on a working setup. **DO NOT TRY THIS** if you don't need to, and the procedure **WILL NEVER WORK** if your displays are not set up correctly per the graphics caveats.

Afterwards you can go into System\_Variables.txt and edit the following lines to get a real "tight fit" on the FMC mixing screen. Here are the best results we have found so far:

WINDOW\_X1,-1280

WINDOW\_Y1,0

WINDOW\_X2,-1

WINDOW\_Y2,1024

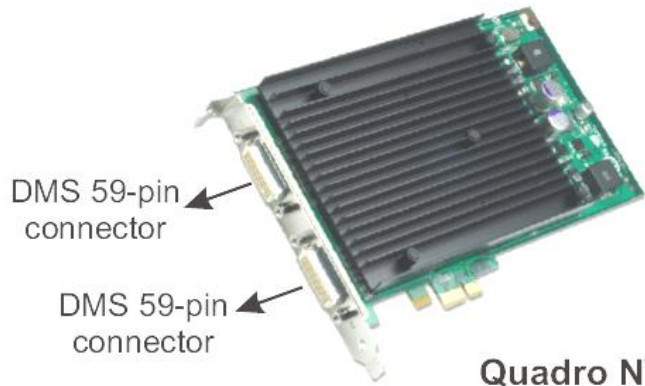
## Notes

There is another possibility for Graphic setup, but this can be a bit more expensive. This involves using directly a Quaduple head graphics card.

A card that has been tested is the NVIDIA Quadro NVS 440. ( NVIDIA Quadro NVS 440 by Leadtek)

PRODUCT	Desktop Series			NVIDIA Quadro NVS 440
	NVIDIA Quadro NVS 280	NVIDIA Quadro NVS 285	NVIDIA Quadro NVS 440	
<b>Memory Size</b>	64MB DDR	64MB DDR 128MB DDR2	256MB <sup>2</sup> DDR	
<b>Memory Interface</b>	64-bit	64-bit	128-bit	
<b>Bus Interface</b>	PCI-32	PCI Express x1 PCI Express x16	PCI Express x1 PCI Express x16	
<b>Form factor</b>	SFF <sup>1</sup>	SFF <sup>1</sup>	ATX Full Height, 1/2 length	
<b>Display Connectors</b>	DMS-59 (1)	DMS-59 (1)	DMS-59 (2)	
<b>Max Displays per Board</b>	2	2	4	
<b>Max Digital Display Support</b>	1600 x 1200	1920 x 1200	1920 x 1200	
<b>Max Analog Display Support</b>	2048 x 1536	2048 x 1536	2048 x 1536	
<b>Max Power Consumption</b>	21W-Passive	21W-Passive	31W-Passive	
<b>NVIDIA nView Enabled</b>	Yes	Yes	Yes	
<b>NVIDIA TurboCache</b>	No	Yes	No	
	1 SFF = Small Form Factor		2 256MB of local frame buffer (128MB DDR memory per GPU)	

This card has the obvious advantage of having 4 independent display outputs directly on the card and it uses only one PCI Express x16 slot.



DMS 59-pin  
connector

DMS 59-pin  
connector

**Quadro NVS 440 (PCI Express)**

# General Connection/Setup Information



FAIRLIGHT CC-1 Media Technology Platform for the 21st Century

## CC-1 and SX20

The connection needed between the CC-1 card and the SX20 requires a DVI-I dual link cable – male to male.





These are relatively easy to find, but in most cases, are not available in stores and need to be ordered. We have seen cables that are up to 15- feet / 5 Meters in length.

## Satellite II connections / USB ...

The Sat II is equipped with a standard USB 1.1 Type B connector on the back.



This can be used directly if needed ... The max cable length between a USB computer and this USB interface is 5 meters (16.5 feet). If you need longer ... Here is our suggestion.

USB Ranger 110/410 pair - this allows you to extend your USB to 100meters  $\hat{a}$  from Icron.

<http://www.icron.com/>

This is the technology that we already license from ICRON to make the USB extreme card.

[http://www.icron.com/products/usb/usb\\_products.php](http://www.icron.com/products/usb/usb_products.php)

## Constellation XT/Anthem connections

You will need to fit on or more "USB extreme card(s)" into one or more of the PCI slots of the DREAM II PC.

### Extreme USB Connection

Your Extreme USB cable is provided by Fairlight. It is a standard Ethernet cable terminated by RJ-45 connectors. At the PC end, plug it into the connector shown below.

If your system is a Station, simply plug the other end into the RJ-45 connector at the rear.



If your system is a ConstellationXT or Anthem, the surface will be open during installation. The Extreme USB cable is normally passed up one leg of the console, after coming through the floor, and should then be connected to the RJ-45 connector on the BMIX002A circuit board.



Rear view of the BMIX002A circuit board, showing the RJ-45 connector at the right.

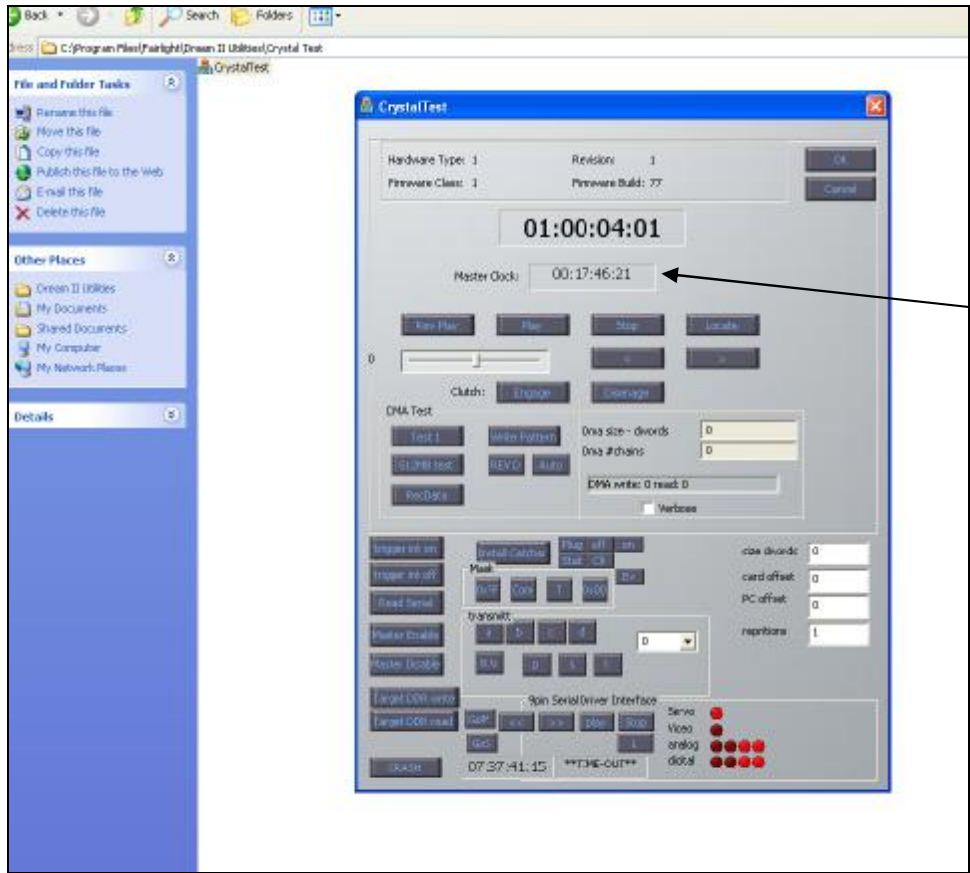
## Information

Extreme PCI is a Fairlight method of carrying many USB signals down one cable. It uses a standard Ethernet cable, and connects to a dedicated card in your DREAM II PC. If your DREAM II system is a 5-bay Constellation/Anthem, your PC will be configured with two Extreme USB cards, and you will be supplied with two cables.

## DREAM II Utilities. ( for Service Technicians )

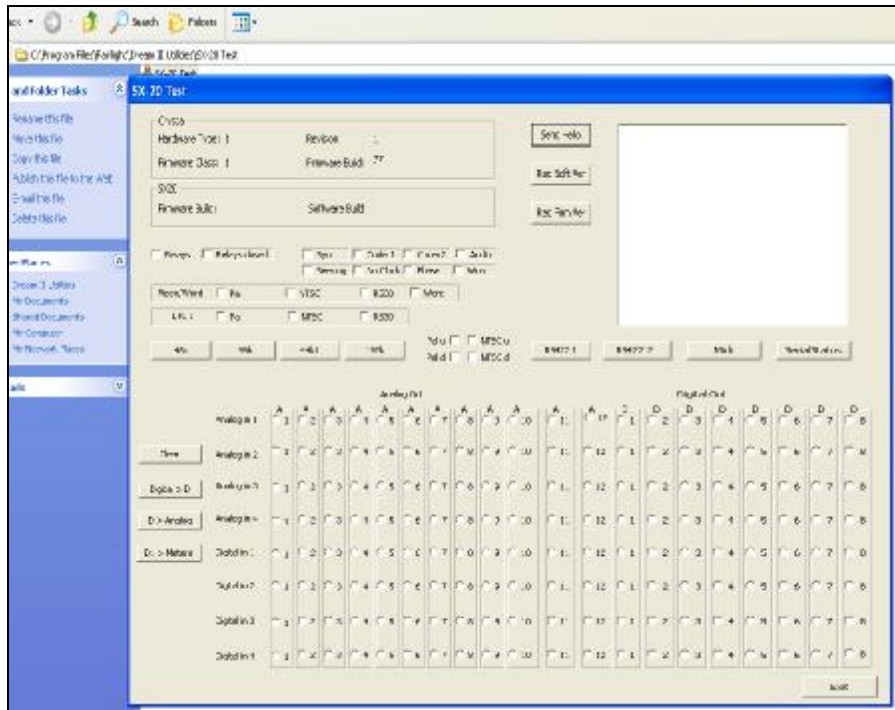
There is a folder here  $\Rightarrow$  C:\Program Files\Fairlight\DreamII Utilities\; This folder contains some useful diagnostic tools:

- § **Crystal Test** – To simply verify that your Crystal Core Card is “running” correctly, please launch CrystalTest ... verify that Hardware Type, Revision, Firmware Class and Firmware Build are clearly indicated, and that the “Master Clock” is running as seen below.



**ATTENTION** : Please do not tamper with other functions of this test program, as these are used for advanced diagnostics and “playing around” with these parameters could endanger the card.

§ **SX20 Test** – This is a diagnostic utility for the SX20 ... stay tuned, full documentation pending.



§ **SX20 Flash** – With certain DREAM II software updates, it will be necessary to “flash” the actual SX20 firmware. There is a program located in C:\Program Files\Fairlight\DreamII\SX20 Flash\ that permits you to do this.

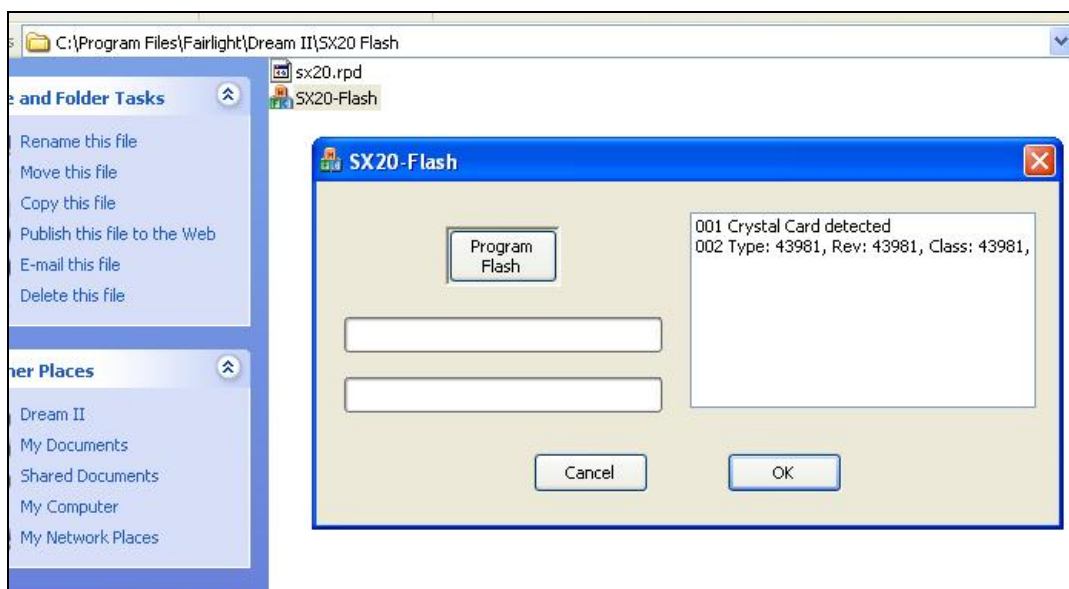
The Flash program uses the CC1 card and the DVI cable to program the on board flash of the SX20. So have the sx20 connected and powered up, but close DryIce/DreamII software that will want to talk to the CC1. Close the DreamII program and launch sx20-flash.

You will get a report about your Crystal core.

Hit "program Flash" - the flashing green led on the sx20 should go out until programming is complete.

The sx20 should re-start immediately.

The whole thing will take about 40 seconds.



Joe Hammer / FairlightAu  
December 06