CrossFire™ FX1

Using bootload and how to upgrade built-in firmware

CC SYSTEMS

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Using bootload and how to upgrade the CrossFire™ FX1

The CrossFire™ FX1 contains built in firmware, this document contains instruction about how to download firmware to the unit.

Bootloader

A bootloader is a program whose purpose is to load and run programs in microcontroller platforms. In this case the intention with the bootloader is to load and store a new hex-file that contains the firmware for a specific unit.

The process of loading new firmware requires communication between the processor and the computer on which the code is stored. Bootload accomplishes this via a serial port.
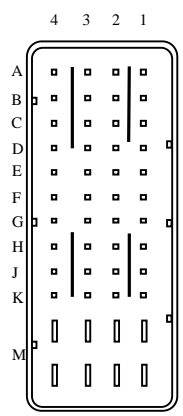
In order to connect and get the CrossFire™ FX1 to accept new firmware the bootstrap load pin must be activated, when this pin is made active the unit places itselves in a mode where it accepts communication with a bootloader.

Connection

When loading firmware to the CrossFire™ FX1 the following pins are involved

Connector J2

Conn.Pin	Signal Type	Connector type	
J2.A3	RS 232 XMT	MOLEX male, 48-pole, brown	
J2.B3	RS232 RCV	mates with: MOLEX female CMC connector 98993-3319 or 98993-1319	
J2.F1	bootstrap load		
J2.M1	Power V+ ELX		
J2.M2	GND		

Connection wiring

Connection wiring	
Power V+ ELX	Power 24V
GND	Ground
bootstrap load	Power 24V
GND	Computer RS232 Ground
RS 232 XMT	Computer RS232 Rx
RS232 RCV	Computer RS232 Tx

Hitex Bootload

Hitext Bootload is a program for loading firmware to the CrossFire™ FX1.
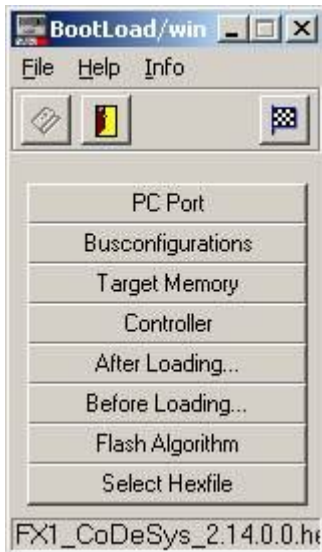When the program is started the following interface appers.

Figure 1, Hitext Bootload interface.

PC Port
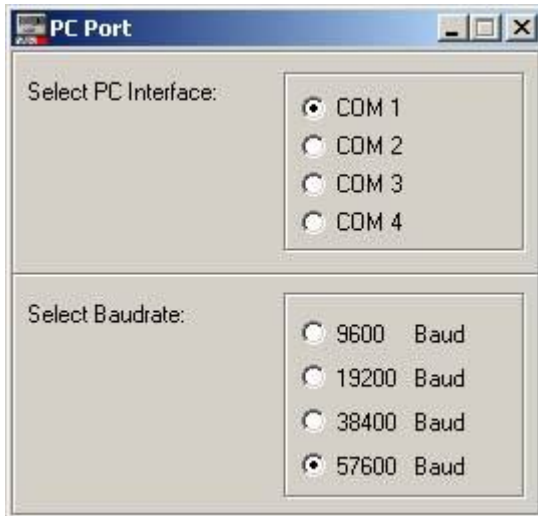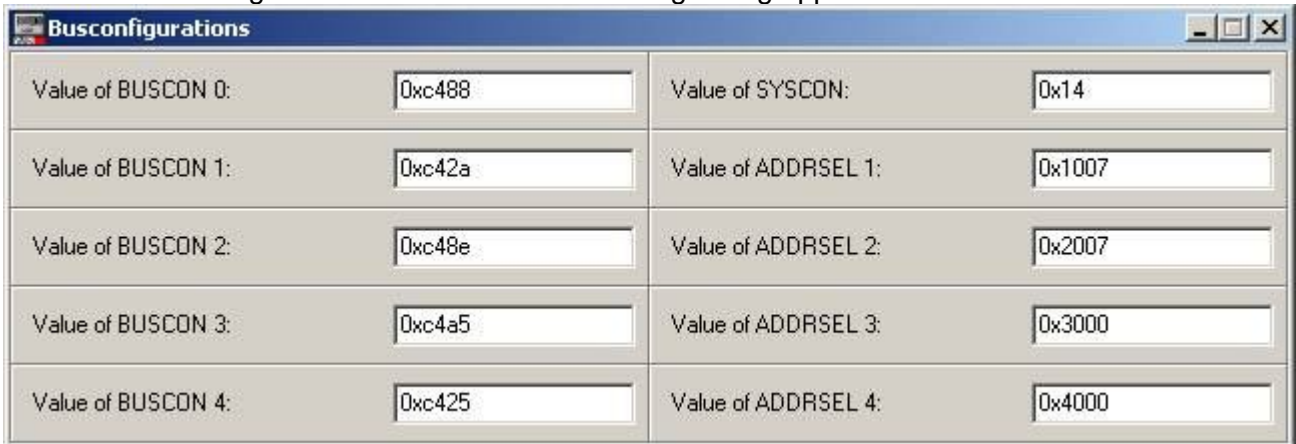
Press the PC Port button and the following dialog appers.

Figure 2, PC Port dialog.

Set the Baudrate to 57600 Baud and select COM port according to where it is
connection in you computer.

Busconfigurations
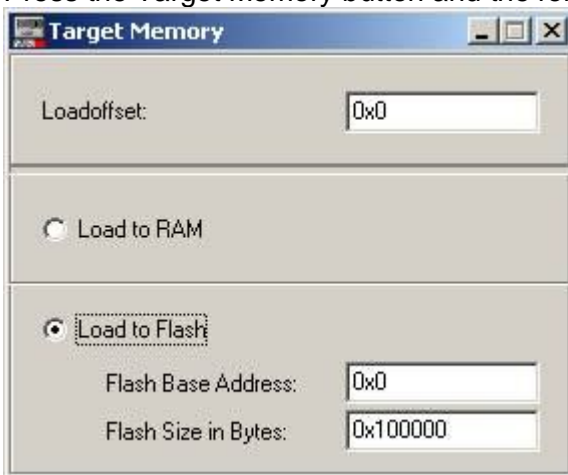Press the Busconfigurations button and the following dialog appers.

Busconfigurations			
Value of BUSCON 0:	0xc488	Value of SYSCON:	0x14
Value of BUSCON 1:	0xc42a	Value of ADDRSEL 1:	0x1007
Value of BUSCON 2:	0xc48e	Value of ADDRSEL 2:	0x2007
Value of BUSCON 3:	0xc4a5	Value of ADDRSEL 3:	0x3000
Value of BUSCON 4:	0xc425	Value of ADDRSEL 4:	0x4000

Figure 3, Busconfigurations dialog.

Set the values according to Figure 3.

Target Memory
Press the Target Memory button and the following dialog appers.

Target Memory

Loadoffset: 0x0

C Load to RAM
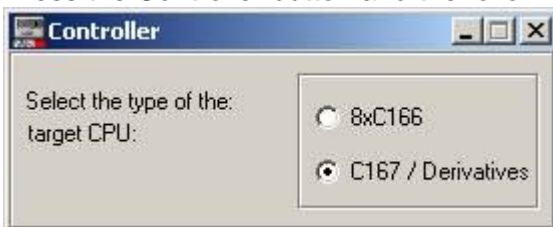
⊙ Load to Flash
Flash Base Address: 0x0
Flash Size in Bytes: 0x100000

Figure 4, Target Memory dialog.

Set the values according to Figure 4.

Controller
Press the Controller button and the following dialog appers.

Controller

Select the type of the target CPU:
C 8xC166
⊙ C167 / Derivatives

Figure 5, Controller dialog.

Set the controller to C167/Derivatives

Before Loading…
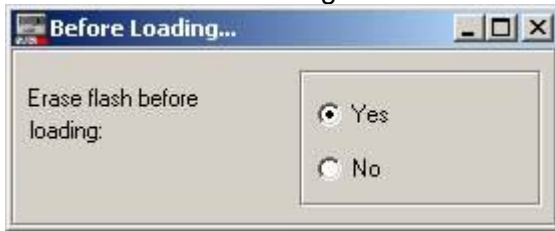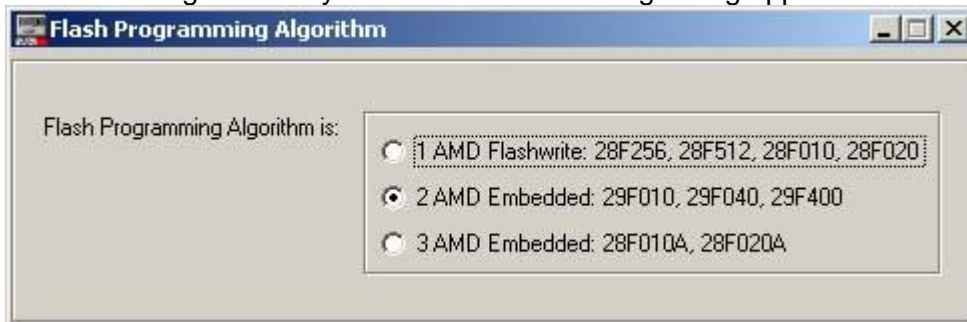Press the Before Loading… button and the following dialog appers.

Figure 6, Before Loading… dialog.

Set Erase flash before loading to Yes.

Flash Programming Algorithm
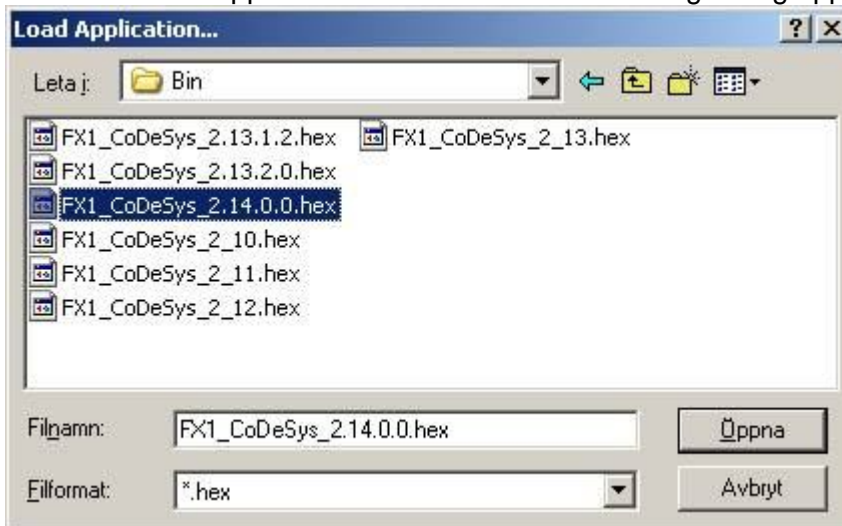Press the Target Memory button and the following dialog appers.

Figur 7, Flash Programming Algorithm dialog.

Set the values according to Figur 7.

Load Application…
Press the Load Application… button and the following dialog appers.

Figur 8, Load Application… dialog.
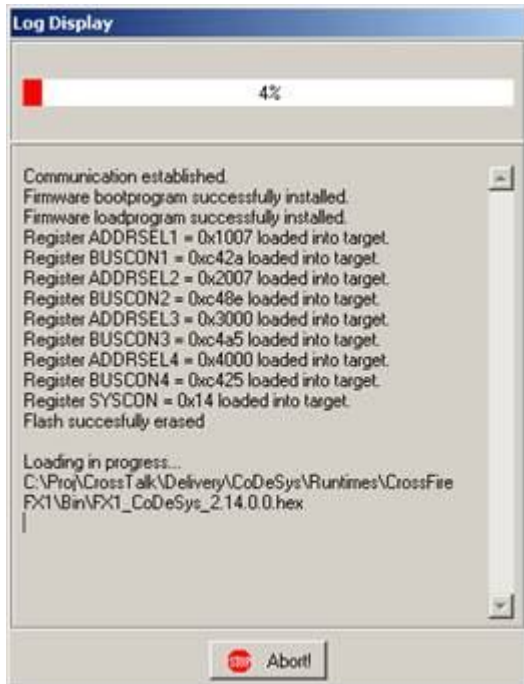
Choose the hex-file to be loaded.

Download the Hex-file

To install and download a firmware, please follow this procedure:

1. Cut the power to the FX1 unit
2. Connect the FX1 unit to you computer via RS232
3. Power up the unit

4. Press on the button that looks like a checker flag and the following will appear

The loader takes a while to complete the firmware loading, so be patient and wait until the progress bar reaches 100%
When the loading is complete

5. Cut the power to the FX1 unit
6. Remove the soldering of pin J2.F1 "bootstrap load" from Vref
7. Power up the unit and start use it.

8. If the following appears, cut the power to the unit and go back to step 3 and try again