DENSITÉ series

CPU-ETH2
Enhanced Ethernet Controller Card
Guide to Installation and Operation

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Electromagnetic Compatibility

This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for Class A digital devices.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/CE:
- EN 55022 Class A radiated and conducted emissions
- EN 55024 Immunity of Information Technology Equipment
- EN 61000-3-2 Harmonic current injection
- EN 61000-3-3 Limitation of voltage changes, voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated electromagnetic field immunity – radio frequencies
- EN 61000-4-4 Electrical fast transient immunity
- EN 61000-4-5 Surge immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

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CPU-ETH2

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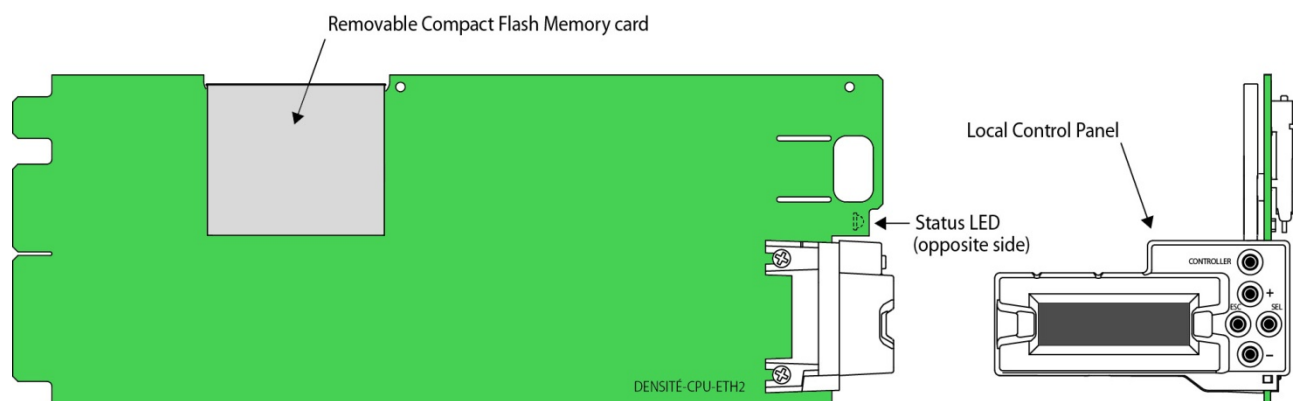# 1 CPU-ETH2 Enhanced Ethernet Controller Card

1.1 Introduction

The DENSITÉ-CPU-ETH2 Controller supports all on-frame communication between cards, and incorporates a front control panel for local control and adjustment of the frame and installed cards. The CPU-ETH2 Controller serves as the communications port for control and alarm information entering and leaving the frame. In addition to all the features of the basic controller, the CPU-ETH2 controller features an Ethernet port for system-wide monitoring and control of DENSITÉ frames, using Miranda's control solutions or a third party monitoring system. This controller card is compatible with the TCP/IP protocol, can control up to 20 cards within the same frame and can support polling or report on error modes (unsolicited messaging).

1.2 Features

- Dual Ethernet RJ-45 ports (10/100Base-T) - the two ports can be configured independently for full network redundancy
- In addition to static IP address configuration , each port allows DHCP dynamic addressing
- Provides ultra-robust Ethernet connectivity for LAN/WAN
- Controls up to 20 DENSITÉ cards of any type in a single frame
- Accelerated data throughput: allows video thumbnail and audio level meter and line scope streaming from all 20 modular cards
- Linux-based operating system for robust, mission-critical operations
- Removable Compact Flash memory card for portable and quickly-recoverable device and frame configuration
- User-configurable GPI alarm port
- Features front display panel and push-buttons for local configuration of cards and frame
- Can be remotely configured via iControl
- Provides card and frame health monitoring and status reporting
- Provides extensive frame monitoring:
  - o Ethernet port monitoring, with communication settings and overall bit rate
  - o detailed bitrate and communication throughput from individual cards
  - o self-monitoring with CPU load, memory usage
  - o Power Supply and GPI status reporting
- Individual Card parameter storage for easy card swapping
- Communication speeds of up to 100 Mbps via Ethernet ports

1.3 Card Layout

Removable Compact Flash Memory card

Local Control Panel

Status LED (opposite side)

DENSITÉ-CPU-ETH2

CONTROLLER
ESC
SEL
+
−

2 Operation

2.1 Overview

All of the cards installed in a DENSITÉ frame are internally connected to the frame's controller card, which handles all interaction between the cards and the outside world. The controller supports remote operation via its Ethernet ports, and local operation using its integrated control panel.

2.2 The Local Control Panel

The local control panel is fastened to the front of the CPU-ETH2 controller card, and when installed is located in the front center of the frame, positioned in front of the power supplies. The panel consists of a display unit capable of displaying two lines of text, each 16 characters in length, and five pushbuttons.
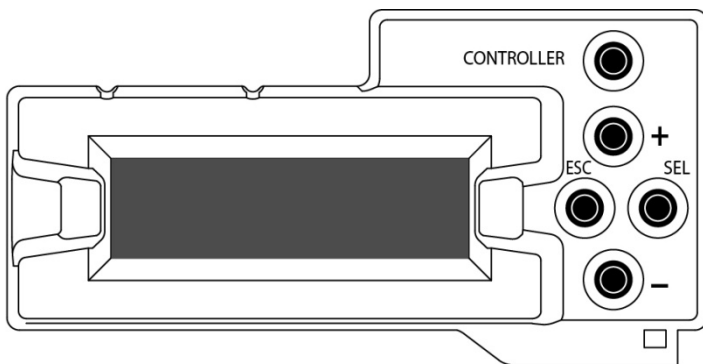
The panel is assigned to operate any card in the frame by pushing the SELECT button on the front edge of that card. Pushing the CONTROLLER button on the control panel selects the Controller card itself. The STATUS LED on the selected card flashes yellow.

The local control panel displays a menu that can be navigated using the four pushbuttons located beneath the display. The method of navigating the menu and selecting and modifying parameters is common for all cards. For detailed information about the menu for a specific card, see its manual. For detailed information about the menu for the controller card itself, see page 16.

The functionality of the five pushbuttons is as follows:

[CONTROLLER] Selects the controller card for status monitoring and adjustment

[+] [–] Used for menu navigation and value modification

[SEL] Gives access to the next menu level. When a parameter value is shown, pushing this button once enables modification of the value using the [+] and [–] buttons; a second push confirms the new value

[ESC] Cancels the effect of parameter value changes that have not been confirmed; pushing [ESC] causes the parameter to revert to its former value.

Pushing [ESC] moves the user back up to the previous menu level. At the main menu, [ESC] does *not* exit the menu system. To exit, re-push the [SEL] button for the card being controlled.

If no controls are operated for 30 seconds, the controller reverts to its normal standby status, and the selected card's STATUS LED reverts to its normal operating mode. The parameter currently being edited will be saved.

2.3 Status LED

The status monitor LED is located on the front card-edge of the controller module, and is visible through the front access door of the DENSITÉ frame. This multi-color LED indicates module status by color, and by flashing/steady illumination, according to the chart. The chart also indicates fault reporting for this card on the DENSITÉ frame's serial and GPI interfaces.

	GPI Report	COLOR (F=flashing)			
		G	Y	R	FR
No errors		✪			
Power supply failure	✪				✪
Fan failure	✪				✪
Internal error	✪			✪	

✪ : Factory default.

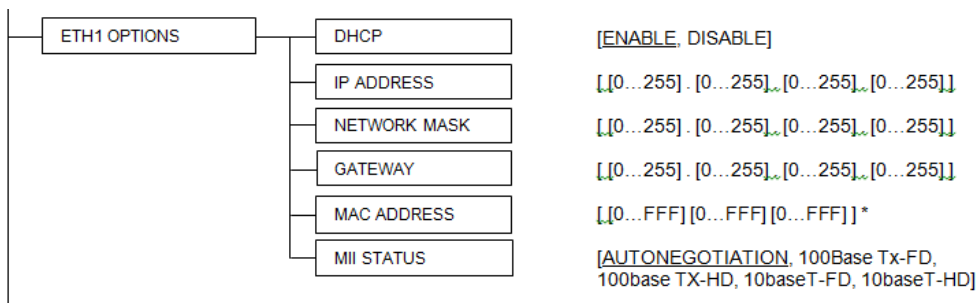▢ : LED color and reporting not user configurable

NOTE: A "Flashing Yellow" Status LED indicates one of the following:

- The CTRL button on the front panel has been pushed.
- The controller is displaying a spontaneous message – see the display for details.
- The controller is booting up, after a reset or power up. A status message is displayed. Once the boot process is completed, the LED will go to steady green unless there are other errors per the above chart.

3 Preliminary Configuration

The first step in setting up a new Densité frame and its associated CPU-ETH2 controller to operate in your network is to configure its IP address to fit into your network structure. This is most easily done by using the onboard menu and local control panel. Proceed as follows:

1. Obtain the appropriate IP address, Network Mask and Gateway from your IT department, if necessary.
2. Power up the Densité frame.
3. Open the front door to the frame.
4. Push CONTROLLER on the local control panel located in the center of the frame (see section 2.2 on page 2)
5. Using the local control panel, scroll down the menu using the – key until the screen displays ETH1 OPTIONS
6. Push SEL and then – to move to the IP ADDRESS section

ETH1 OPTIONS	DHCP	[ENABLE, DISABLE]
	IP ADDRESS	[[0…255] . [0…255] . [0…255] . [0…255]]
	NETWORK MASK	[[0…255] . [0…255] . [0…255] . [0…255]]
	GATEWAY	[[0…255] . [0…255] . [0…255] . [0…255]]
	MAC ADDRESS	[[0…FFF] [0…FFF] [0…FFF]] *
	MII STATUS	[AUTONEGOTIATION, 100Base Tx-FD, 100base TX-HD, 10baseT-FD, 10baseT-HD]

7. Enter the IP address, then scroll down to enter the Network Mask and Gateway values.

8. Push `ESC` until you are back at the main menu, and then push the `CONTROLLER` button again to exit the menu system and save your changes.

Note that if you do not use the controller buttons for thirty seconds, the process will time out, so have your data ready to enter when you start.

4   Local Control Operation

Push the CONTROLLER button on the local control panel to assign that panel to operate the CPU-ETH2 controller. Use the control panel buttons to navigate through the menu, as described in 2.2 above.

The menu is discussed and displayed beginning on page 16.

5   Remote Control Operation

This card supports remote operation through two rear-panel 10/100 Base-T ethernet ports, using Miranda's iControl or a third-party solution. The command set available for communicating with a DENSITÉ frame permits more complex and comprehensive control, parameter storage, and field upgrading than is supported by the local control panel.

Miranda's iControl solution gives access to the settings and adjustments for the CPU-ETH2 controller card in a Densité frame, and also to these features for all cards installed in the frame. For that reason, the iControl interface is used as the primary reference to describe the set-up and operation of the CPU-ETH2.

5.1   CPU-ETH2 Web Page

However, the CPU-ETH2 also serves a web page which provides an alternate means of configuring the card. The web page does not give access to controls for other cards in the frame, however.

The web page is the only point of access for upgrading the CPU-ETH2 firmware – this function is not supported under iControl, or via the local control panel.

See section on page for instructions on accessing the web page and upgrading the CPU-ETH2 firmware.

5.2   iControl Interface

The operation of the CPU-ETH2 card can be controlled using Miranda's iControl system. This manual describes the control panels associated with the CPU-ETH2 and their use. Please consult the iControl User's Guide for information about setting up and operating iControl.

In iControl Navigator or iControl Websites, double-click on the icon of the controller to open its control panel.

- CPU-ETH2 controllers are identified as Controller2 in the Type column of the iControl Navigator window.
- For convenience, enter a descriptive Label in the Info panel of the card, to make it easy to locate this specific frame controller amongst those in the list. See page 5.
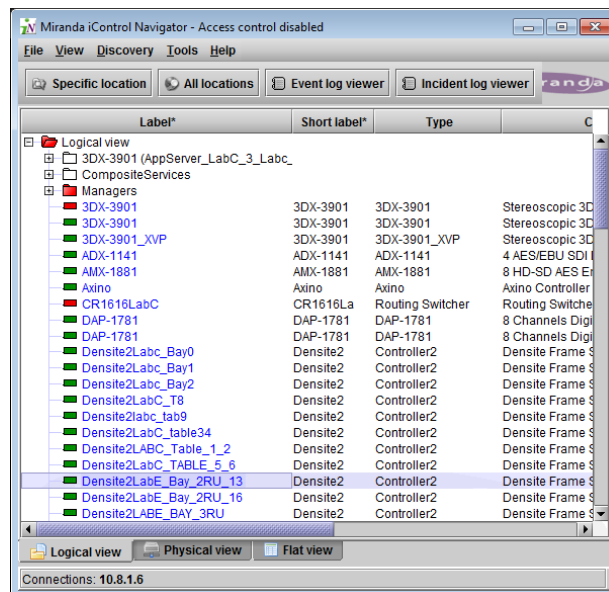
5.3   Feature Management

This section introduces the operating features of the CPU-ETH2 controller, and describes how to access and control them using:

- The iControl interface
- The local control panel and menu.

The following topics are covered:

5.3.1   Topic – Identification

The CPU-ETH2 controller is accessible on a network, and must be identifiable in order to function in the iControl environment. The identification data is entered in the iControl INFO control panel. This panel also shows other data that is not user-adjustable.

You can enter the following information by clicking and typing in the data box:

- Label: allows the user to define the label that appears for this device when it appears in iControl applications

- Short Label: allows the user to define the short-form label for iControl (8 characters)

- Source ID: type a descriptive name for this CPU-ETH2 controller

- Comments: type any desired text

The remaining data boxes show manufacturing information about this card.

Three buttons in the panel give access to other information.

- Details: Reports the Firmware version, service version, and panel version for this card

- Advanced: Shows the Miranda LongID for this card. The Miranda LongID is the address of this CPU-ETH2 controller in the iControl network.

- Remote System Administration. Opens the Joining Locators data box.

Using the menu

None of this data can be accessed or entered via the local control panel menu, except the Firmware version.

5.3.2   Topic – Status Monitoring

The CPU-ETH2 controller continuously monitors the condition and status of the frame it is controlling and the cards installed in the frame. This information can be viewed in the iControl STATUS panel.

The information is grouped into four classes:

1. Frame status

Select the *Frame* tab to see a report on the status of the frame's CPU, fans and power supplies.

The CPU-ETH2 card can be installed in Densité 2 and Densité 3 frames (including Densité 3 mini and Densité 3+ FRI), and the frame type is indicated here.
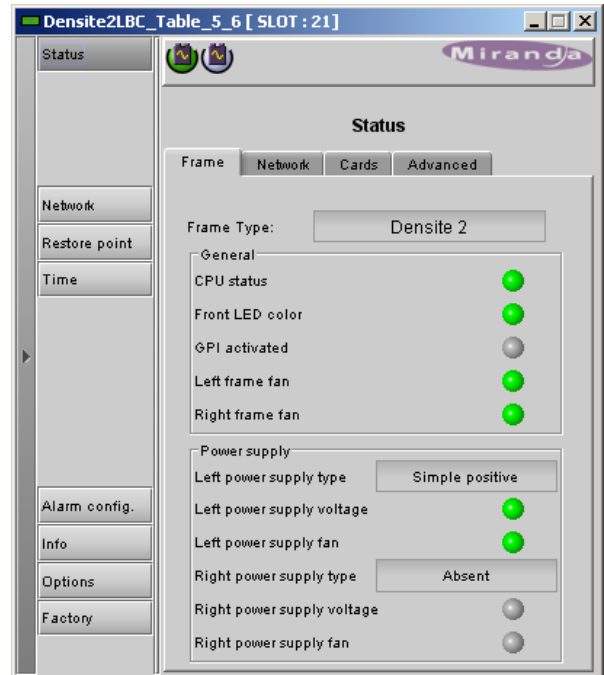
2. Network Status

Select the *Network* tab to see a report on the status of the two Ethernet ports on the CPU-ETH2 card.

3. Card Throughput

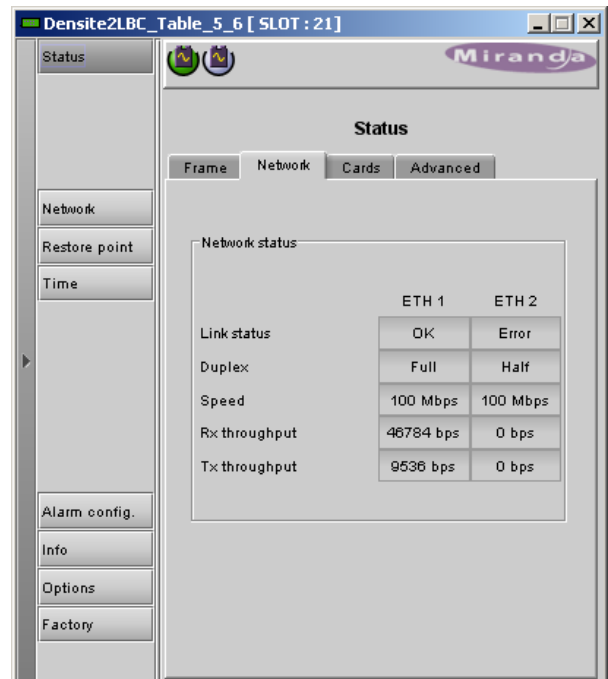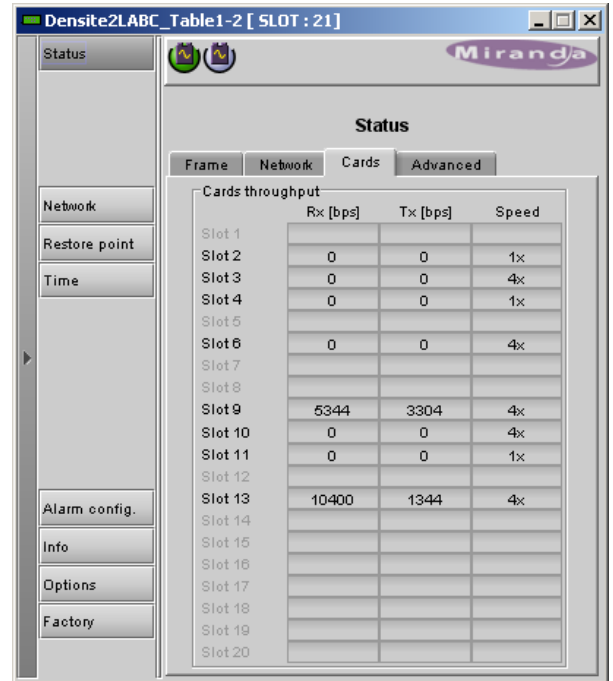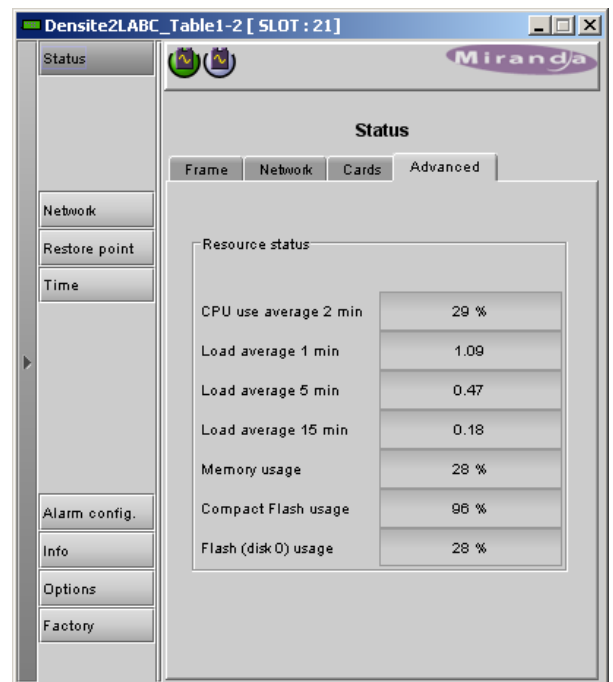Select the *Cards* tab to see a chart of the current send (Tx) and receive (Rx) data rates, and speed, for all cards installed in the Densité frame.

For a more detailed report on the status of a specific card, open that card's control panel in iControl.

Densite2LABC_Table1-2 [SLOT : 21]

Status

Frame	Network	Cards	Advanced

Cards throughput

	Rx [bps]	Tx [bps]	Speed
Slot 1			
Slot 2	0	0	1x
Slot 3	0	0	4x
Slot 4	0	0	1x
Slot 5			
Slot 6	0	0	4x
Slot 7			
Slot 8			
Slot 9	5344	3304	4x
Slot 10	0	0	4x
Slot 11	0	0	1x
Slot 12			
Slot 13	10400	1344	4x
Slot 14			
Slot 15			
Slot 16			
Slot 17			
Slot 18			
Slot 19			
Slot 20			

4. CPU-ETH2 Card Resource Usage.

Select the *Advanced* tab to view a report on the usage of the card's resources:

Densite2LABC_Table1-2 [SLOT : 21]

Status

Frame	Network	Cards	Advanced

Resource status

CPU use average 2 min	29 %
Load average 1 min	1.09
Load average 5 min	0.47
Load average 15 min	0.18
Memory usage	28 %
Compact Flash usage	96 %
Flash (disk 0) usage	28 %

5.3.3 Topic – Network Configuration

The CPU-ETH2 controller's two Ethernet ports can be configured using the iControl interface, or through the card-front menu. Open the NETWORK panel and select the ETH tab to configure them through iControl.

Enter the HOSTNAME in the box at the top.

Then configure the two ports individually.

Consult your IT department if necessary before configuring the ports, to ensure that the Densité controller is correctly integrated into your local network

IP Address: | Enter the values supplied
Subnet mask: | by your network
Gateway: | administrator

The MAC (Media Access Control) address is reported in the data box

- The MAC address is not user-configurable.
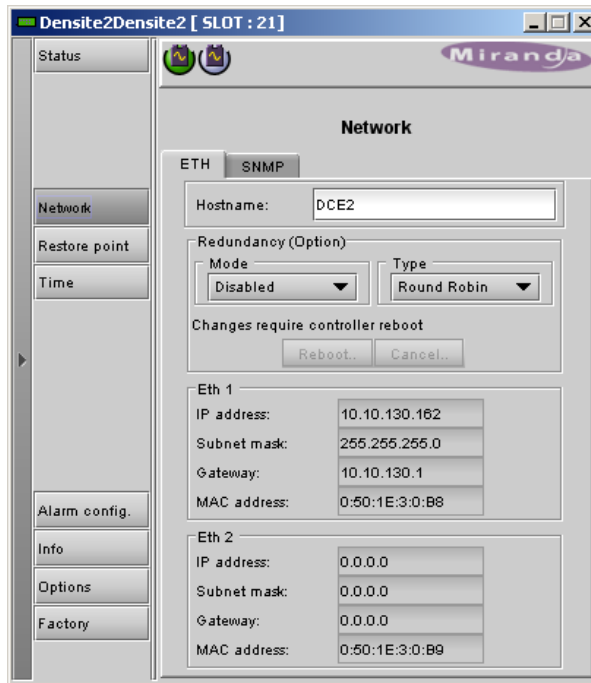
Redundancy (option)

The Ethernet Link Redundancy option is configured in this panel.

- Note that the option must be purchased and activated before this feature becomes available. See page 14 for details.

Mode: enable or disable the link redundancy function

Type: select one of the available bonding modes
- Round Robin
- Active Backup

About Channel Bonding (Ethernet Link Redundancy option)

Channel bonding is an arrangement in which two or more network interfaces on a host computer are combined for redundancy or increased throughput.

- The Densité CPU-ETH2 **Ethernet Link Redundancy option** must be enabled to use Channel Bonding.

The Densité CPU-ETH2 supports two bonding modes:

Round-Robin: This mode provides load balancing, fault tolerance and increased throughput. Transmissions are received and sent out sequentially on each bonded slave interface beginning with the first one available. This mode requires that the remote equipment (host or switch) be configured to aggregate traffic over several ports (Trunk, EtherChannel, etc.).

Active-Backup: This mode provides fault tolerance. Transmissions are received and sent out via the first available bonded slave interface. The other bonded slave interface is only used if the active bonded slave interface fails. This mode doesn't require any configuration of the remote equipment.

When Channel Bonding is enabled, the two Ethernet interface are seen as one. Therefore Eth 2 settings are disabled and network settings are changed using Eth 1.

Using the Menu

The local control panel menu can also be used to enter these values:

Hint: the first time you set up the CPU-ETH2 card, get the Network details from your IT manager and install them on the card using the menu. The card will then be easy to find using iControl applications.

The data entry points are found in the menu under ETH1 OPTIONS and ETH2 OPTIONS. Note that the Hostname is reported in the menu but cannot be changed from there.

5.3.4   Topic – SNMP functionality

The CPU-ETH2 card can function as an SNMP agent, sending SNMP traps to designated targets. The SNMP agent can also be polled to obtain the frame status.
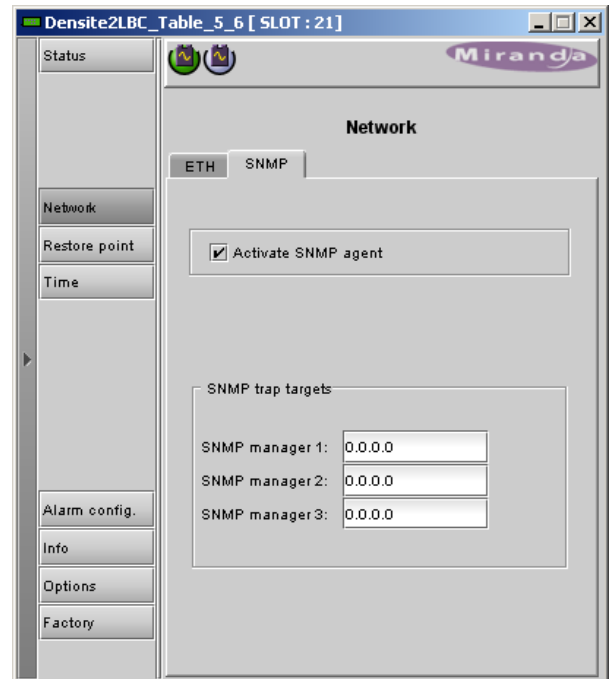
Open the NETWORK panel and select the SNMP tab.

Click the Activate SNMP Agent box to activate this feature

Enter the IP addresses of up to three SNMP trap targets in the boxes provided.

Using the Menu:

SNMP activation and the three target IP addresses can be entered in the menu via the SNMP OPTIONS item.

5.3.5   Topic – Data Restoration

Many of the Densité-series cards that can be installed in the frame with the CPU-ETH2 controller are complex and have a lot of data stored on-board related to their configuration and parameter values. The CPU-ETH2 controller provides a backup of this data, which can be restored to the card when needed. This is valuable if the card is inadvertently reconfigured, or is replaced after failure with a new card of the same type. Data restoration is managed from the Restore Point iControl panel.

Open the Restore Point panel and view the Cards tab.

The tab show a list of the 20 slots available in the Densité frame, with a checkbox, name, and status box for each.

- Click the checkbox to activate the Data Restore feature for the card in that slot,

-or-

- Click the Select All box at the top to activate the feature for all slots in the frame.

Click **Save to controller** at the bottom to copy all restorable data from the cards in the selected slots into the memory on board the CPU-ETH2 controller.

Click **Load to cards** to load the cards in the selected slots with data from the controller's memory.

Note that a data restore will only work if the card in the slot is the same type as the card that was there when the data was saved.
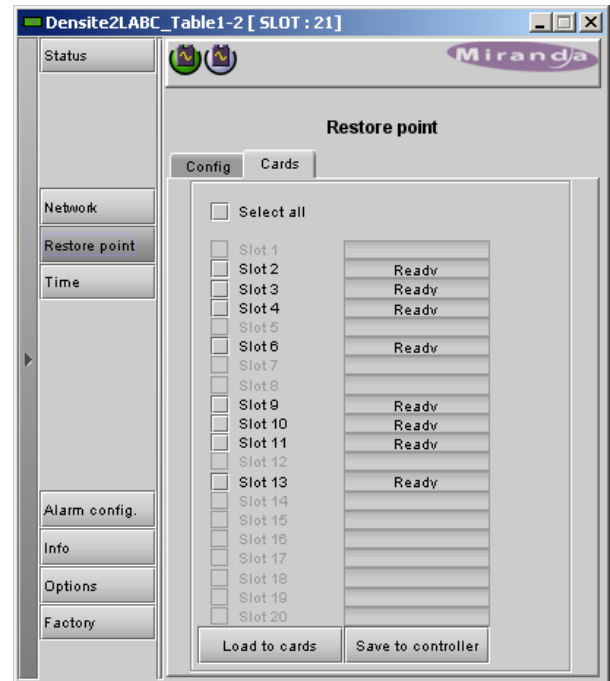
Automatic restore

The CPU-ETH2 card can be set up to automatically update a card when it is inserted in a slot previously occupied by a card of the same type whose data was saved. Thus, a new card can be configured automatically to replace the card that was removed, saving a lot of time when cards are swapped.

Open the Config tab in the Restore Point panel.

Click the *Restore Settings on Card* box to enable the auto restore function for all the cards in the frame.

Using the menu

Access the data restore function from the Restore Points menu item
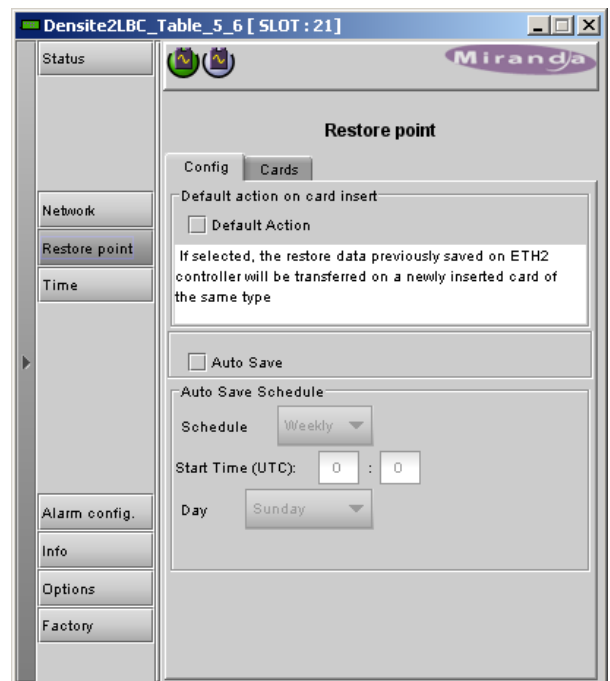
5.3.6   Topic – Factory Alignment

There may be times when the CPU-ETH2 settings have been adjusted and it is useful to restore them to a normalized condition. The CPU-ETH2 controller maintains a "Factory Default" alignment in its memory, to which it can be restored at any time.

Note: Ethernet settings are not included in the Factory data set, and are not changed when the Factory Default alignment is installed.
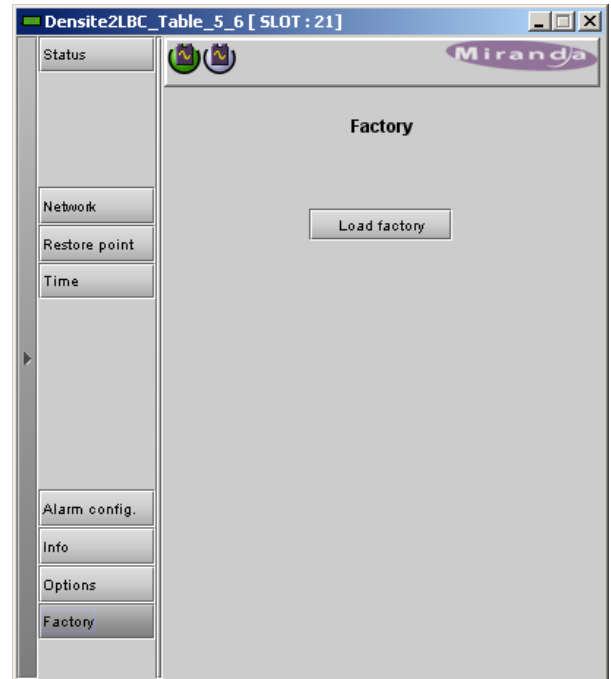
Open the Factory iControl panel.

Click the *Load Factory* button to restore the card to the Factory default alignment.

Using the menu

The factory default values can be loaded from the FACTORY menu item.

The default values are shown underlined in the menu listing beginning on page 16.

5.3.7   Topic – Time management.

The CPU-ETH2 controller is time-aware, and its internal clock can be updated via several mechanisms.

Open the iControl Time panel.

Time (UTC)
The data boxes in this section display the time and date currently held in the card.

Enter new values in these boxes to change the current setting. If an automatic update via NTP is not enabled, the clock will continue to run using an on-board reference, but precision is not guaranteed.

NTP IP address
Click the *Enable NTP* box to use an NTP (Network Time Protocol) source. Enter up to three IP addresses of NTP servers. The CPU-ETH2 card will use the first source of valid time it finds in this list.

Using the menu

You can enter the current time and date, and activate the NTP time sourcing through the TIME OPTIONS menu item.
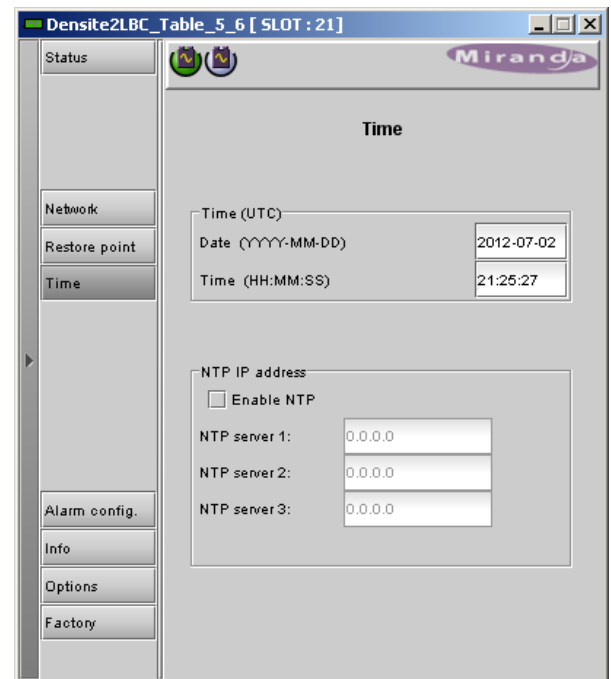
5.3.8 Topic – Alarms

The CPU-ETH2 controller generates alarms for the frame in which it is installed when error conditions are detected. The iControl Alarm Configuration panel allows the alarm reporting of the CPU-ETH2 to be configured.

The panel opens in a new window when the *Alarm Config.* button is clicked, and can be resized if needed.

The panel is organized in columns.

Status/Name
This contains an expandable tree listing all the alarms reported by this CPU-ETH2 controller.
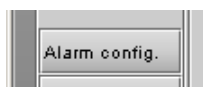
- Each alarm name includes an icon that shows its current status

The **Overall alarm** and **GSM contribution** columns contain pulldown lists that allow the level of contribution of each individual alarm to the alarm named in the column heading to be set.

➢ Click on the alarm icon to see the available levels; then click on one to select it

Overall Alarm
This column allows configuration of the contribution of each individual alarm to the Overall Alarm associated with this card. The Overall Alarm is shown in the upper left corner of the iControl panel, and also appears at the bottom of the Status/Name column.

GSM Contribution
This column allows configuration of the contribution of each individual alarm to the GSM Alarm Status associated with this card. GSM is a dynamic register of all iControl system alarms, and is also an alarm provider for external applications. The possible values for this contribution are related to the Overall alarm contribution:

- If the Overall alarm contribution is selected as Disabled, the GSM alarm contribution can be set to any available value
- If the Overall alarm contribution is selected as any level other than disabled, the GSM contribution is forced to follow the Overall Alarm.

> **Levels associated with these alarms:**
>
> The pulldown lists may contain some or all of the following options:
>
> ⚫ Disabled   The alarm makes no contribution (black icon)
>
> 🟡 Minor   The alarm is of minor importance (yellow icon)
>
> 🟠 Major   The alarm is of major importance (orange icon)
>
> 🔴 Critical   The alarm is of critical importance (red icon)
>
> 🟠 Passthrough   The alarm exists but has no effect (used for text and composite alarms)
>
> **Shortcut:** *if you click in one of the Set All boxes beside a section heading, you will open a pulldown that lets you assign a level to all alarms in that section of the column simultaneously.*

Once the alarms are configured, you may accept the changes or discard them:

Log Events

iControl maintains a log of alarm events associated with the card. The log is useful for troubleshooting and identifying event sequences. Click in the checkbox to enable logging of alarm events for each individual alarm.

At the bottom of the window are several other controls

Copy to other cards

Click this button to open a panel that allows the alarm configuration set for this card to be copied into other CPU-ETH2 controllers in other frames.

- Select one or more destination controllers from the list in the window by clicking in the checkboxes, or all of them by clicking in the *All* checkbox
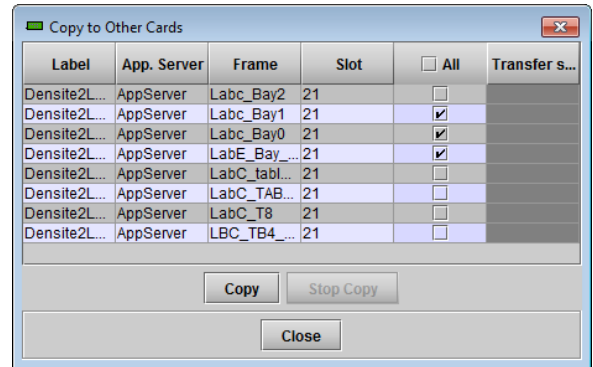
Get alarm keys

Click this button to open a save dialog where you can save a file containing a list of all alarms on this controller and their current values, along with an Alarm Key for each. The alarm keys are useful for system integration and troubleshooting.

- The file is saved in .csv format
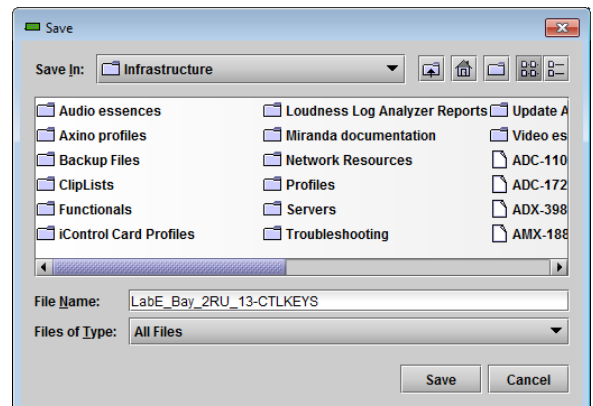
OK, Apply, Cancel

- *OK* accepts the settings and closes the window once the controller confirms that there are no errors.
- *Apply* accepts the settings, but leaves the window open
- *Cancel* closes the window without applying any changes, and leaves the previous settings intact.

Using the Menu

Access the Alarm Report menu item, and scroll through the list of available alarms, setting each to OFF or to report through GPI.

5.3.9   Topic - Options

Only one option is available for the CPU-ETH2 controller.

The Ethernet Link Redundancy option uses channel bonding to achieve redundancy or increased throughput. TheCPU-ETH2 offers two bonding modes – Round-Robin and Active-Backup.

Once this option is activated, the bonding mode can be selected, and the option itself enabled or disabled, in the ETH tab of the Network iControl panel – see page 8.

Page 8 also gives a more detailed description of the two channel bonding modes.
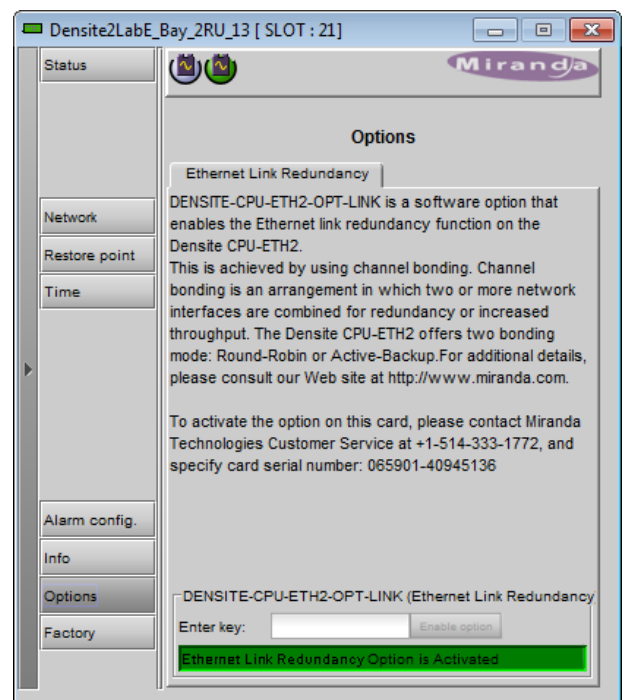
6   Local Controller Operation

Push the CTRL button on the local control panel to access the CPU-ETH2 card's menu structure shown below. Here is a summary of the top-level menu items and the content they access.

Status   If there are faults, the second line of the display initially shows "Status". It then cycles through a list of the current faults, for example: FAN2 FAILURE or PS1 FAILURE.

Host name   Reports the host name of the controller.

ETH1 Options   Allows the user to enable/disable DHCP, and to set the IP address, network mask and gateway URL for the ETH1 port.

ETH2 Options   Allows the user to enable/disable DHCP, and to set the IP address, network mask and gateway URL for the ETH2 port.

SNMP Options   Enable/disable the SNMP agent, and manage IP addresses for SNMP traps.

Restore points   Save the on-board data for all cards in the Densité frame, or for a designated card.

Time options   Sets up the method by which the CPU-ETH2 controller obtains time information.

Alarm Report   Allows the user to cycle through a list of alarms and choose whether each item will be reported on the GPI port.

GPI Report   Allows the GPI output to be enabled or disabled; disable removes any existing fault report

CTRL Version   Returns the version number of the currently-installed firmware.

Factory Default   Restores factory default settings for all parameters (but not ethernet settings).

Upgrade   Perform a controller firmware upgrade.

CTRL Execution   Reboot the controller card.

6.1 DENSITÉ CPU-ETH2 MENU

STATUS		PS1 FAILURE
		PS2 FAILURE
		PS1 FAN FAILURE
		PS2 FAN FAILURE
		FAN1 FAILURE
		FAN2 FAILURE
		GPI ACTIVATED
		INTERNAL FAILURE
		CF CARD FAILURE
		RAM FAILURE
		FPGA LOAD FAIL
		ETH1 FAILURE
		ETH2 FAILURE

ETH1 DOWN, ETH1 UP <SPEED> <DUPLEX>

ETH2 DOWN, ETH2 UP <SPEED> <DUPLEX>

HOST NAME		<HOST NAME>*

ETH1 OPTIONS		DHCP
		IP ADDRESS
		NETWORK MASK
		GATEWAY
		MAC ADDRESS
		MII STATUS

[<u>ENABLE</u>, DISABLE]

[[0…255] . [0…255] . [0…255] . [0…255]]

[[0…255] . [0…255] . [0…255] . [0…255]]

[[0…255] . [0…255] . [0…255] . [0…255]]

[[0…FFF] [0…FFF] [0…FFF]] *

[<u>AUTONEGOTIATION</u>, 100Base Tx-FD, 100base TX-HD, 10baseT-FD, 10baseT-HD]

ETH2 OPTIONS		*(SAME AS FOR ETH1)*

CHANNEL BONDING		BONDING OPTION
		BONDING MODE

[ENABLE, <u>DISABLE</u>]

[ACTIVE-BACKUP, ROUND-ROBIN]

SNMP OPTIONS		SNMP AGENT	
		SNMP TRAPS	LIST IP ADDRESS
			ADD IP ADDRESS
			REMOVE ADDRESS

[ENABLE, <u>DISABLE</u>]

[[0…255] . [0…255] . [0…255] . [0…255]]

[[0…255] . [0…255] . [0…255] . [0…255]]

[[0…255] . [0…255] . [0…255] . [0…255]]

WEB SERVER		[ENABLE, DISABLE]

RESTORE POINTS	SAVE ALL CARDS	
	SAVE A CARD	[[1….20]]
	LOAD ALL CARDS	
	LOAD A CARD	[[1….20]]
	DEFAULT ACTION	[KEEP, UPDATE]
	AUTO SAVE	[ENABLE, DISABLE]
	SAVE EVERY	[DAY, WEEK, MONTH]

TIME OPTIONS	TIME		[[HH] : [MM] : [SS]]
	DATE		[[DD] : [MMM] : [YY]]
	NTP CLIENT		[ENABLE, DISABLE]
	NTP SERVER	LIST IP ADDRESS	[[0…255] . [0…255] . [0…255] . [0…255]]
		ADD IP ADDRESS	[[0…255] . [0…255] . [0…255] . [0…255]]
		REMOVE ADDRESS	[[0…255] . [0…255] . [0…255] . [0…255]]
	NTP REFRESH		[EVERY [HH] HOUR]

ALARM REPORT	PS FAILURE	[NONE, GPI]
	FAN FAILURE	[NONE, GPI]

GPI REPORT	[ENABLE, DISABLE]

CTRL VERSION	[FIRMWARE V.XXX] *

BOOT-LOADER VER	[VERSION X.X.X] *

OPTIONS	[LINK REDUN ON/OFF] *

FACTORY DEFAULT	[RESTORE]

Sets all parameters shown above to their underlined default values.

CTRL EXECUTION		[REBOOT]

* Values marked with an asterisk are displayed but cannot be modified through this menu.

7 Upgrading the CPU-ETH2

Upgrading the CPU-ETH2 firmware must be accomplished via a web page served by the controller, and accessed through its ethernet port using a browser. Proceed as follows:

1. Obtain an upgrade file from Miranda Technologies.

    The file you will receive from Miranda will be named 659-01P02-###.zip, where xxx is the firmware release version number.

    Unzip the file, and save the expanded file, which will be named 7659-0102-###.img.

    This .img file is the file you will need to upgrade the CPU-ETH2 card in step 5 below..

2. Using a browser on your network, browse to the IP address of the CPU-ETH2 card.

    You will have set this address in the preliminary section of the controller setup – see section 3 on page 3 of this manual.

    - If you are using iControl, double-click the controller in the iNavigator page, and select NETWORK | ETH to see the IP address.
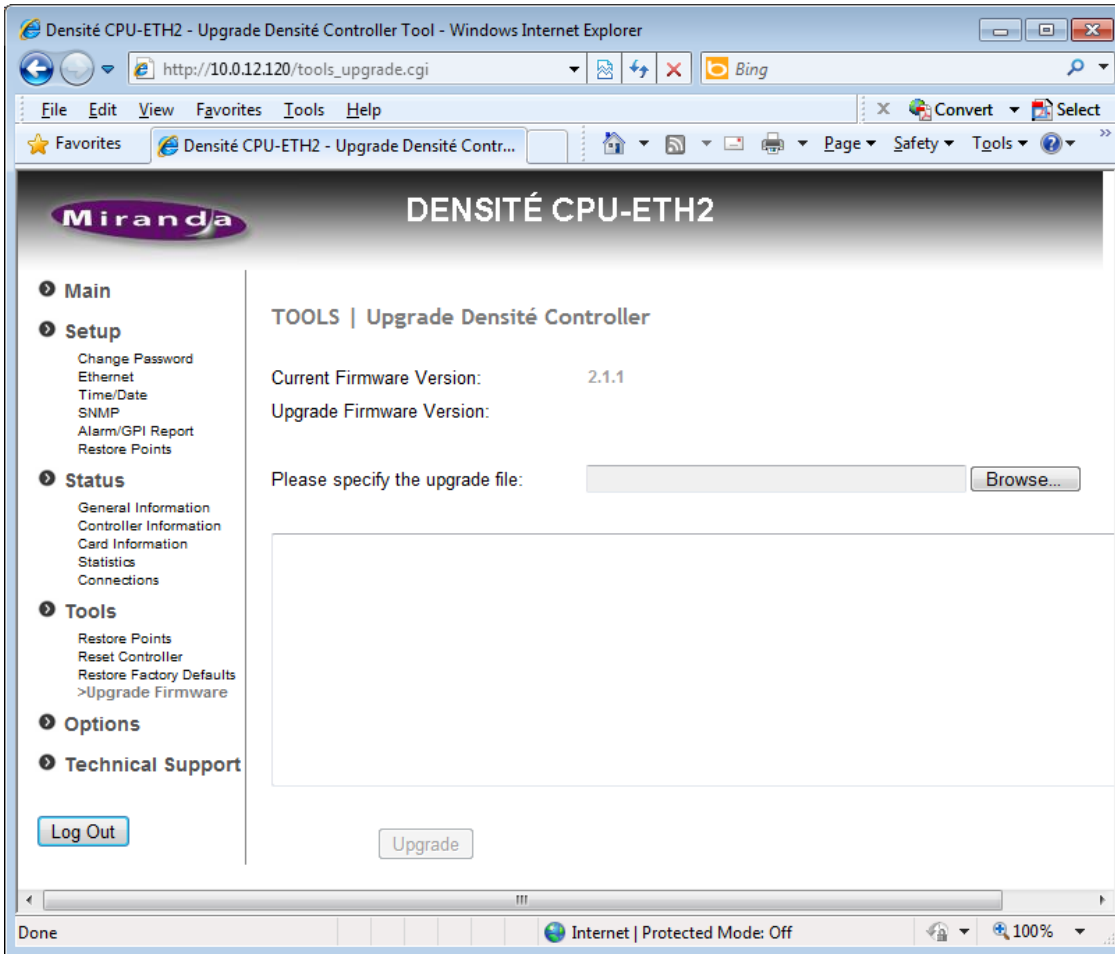
    You will be asked for a username and password – the default values are:

    - Username = admin
    - Password = (leave blank)
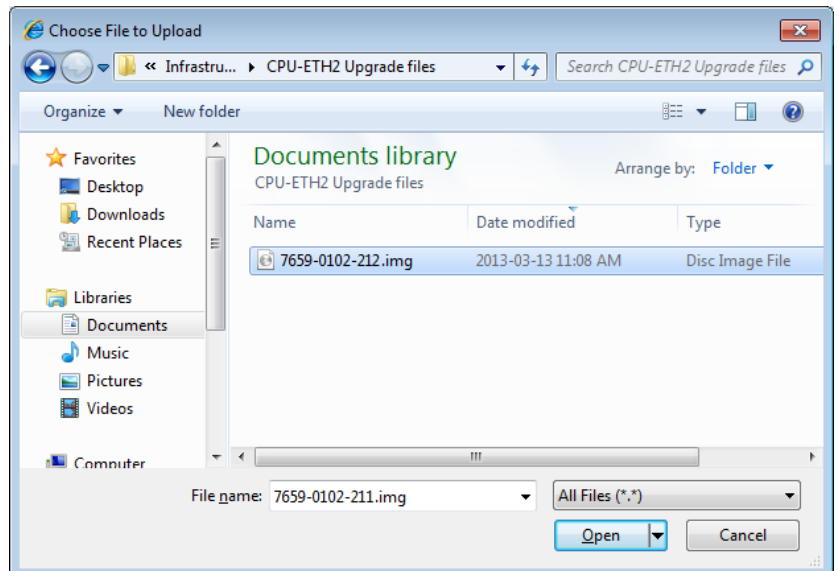
    The CPU-ETH2 web page will open in your browser.
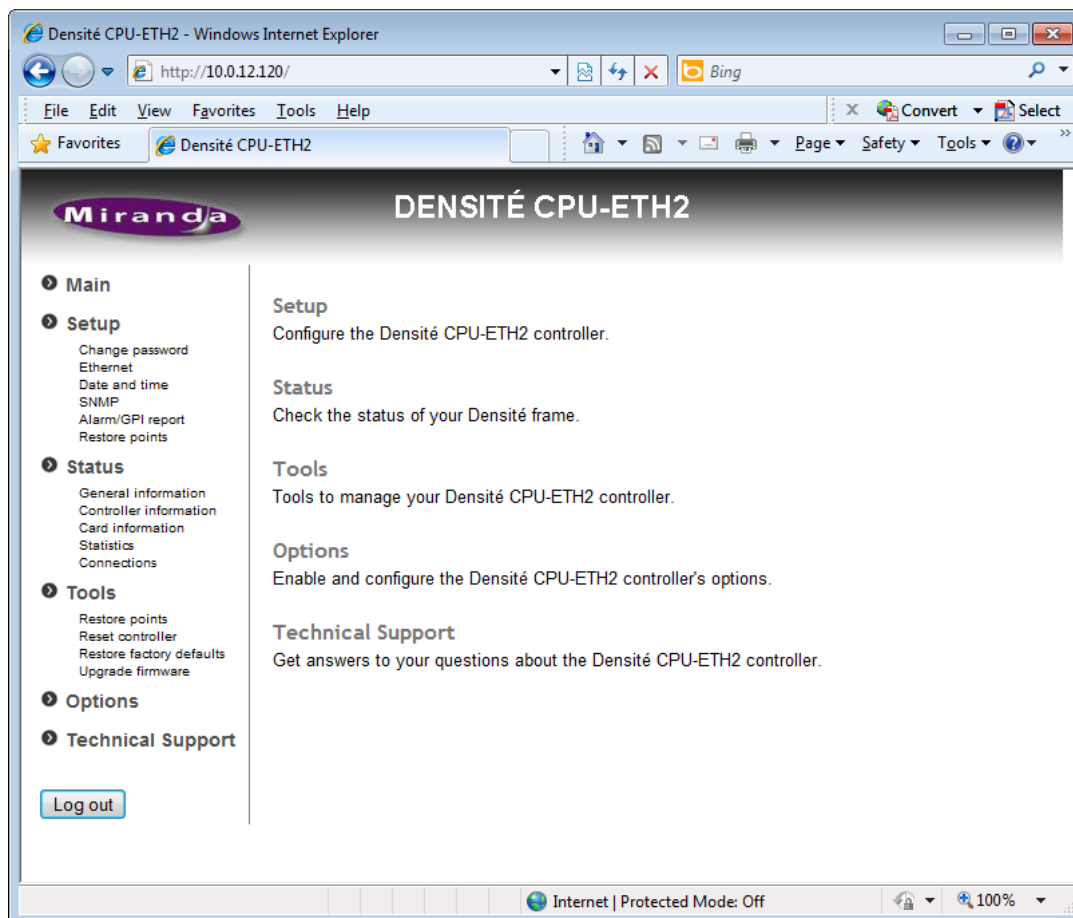
3. In the left-side menu, select Tools | Upgrade Firmware.

The current firmware version is shown at the top of the window

4. Click Browse.

5. In the *Choose File to Upload* window, browse to the upgrade file you obtained in Step 1 (named 7659-0102-###.img), select it and click Open.

In the Tools | Upgrade Densité Controller window, the new upgrade version will be shown at the top of the page, and the *Upgrade* button will be enabled.
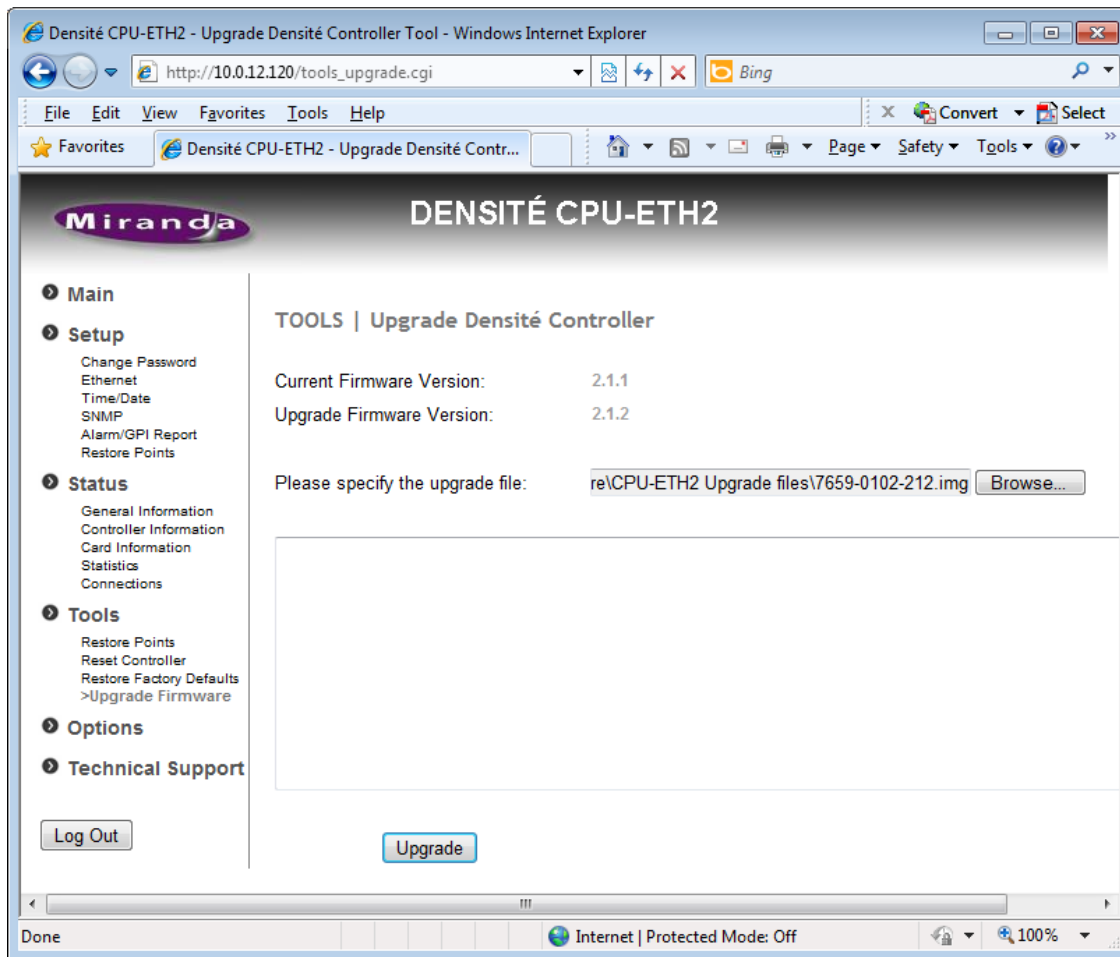
6. Click Upgrade.

    The window will show the status of the upgrade process.

    The CPU-ETH2 card will reboot once the upgrade is complete.

7. Click Log Out at the bottom left of the window to exit the CPU-ETH2 web page.