green**Machine**® Datasheet

callisto+
GM 6825

Description

The greenMachine callisto+ platform provides for simultaneous processing of up to two individual SD/HD/3G SDI signals. The hardware itself is a powerful general-purpose audio and video processing appliance that can perform many different functions using one of the available greenMachine configurations (constellations), i.e. 2CUPXD.

The user can select and license just the constellation, or multiple constellations required at the point of order and can switch between these licensed constellations at any time. Additionally, they may purchase licenses for additional constellations in the future. As all constellations are pre-installed, unlicensed constellations can be deployed for testing and proof of system concept but will show watermarks at the outputs.
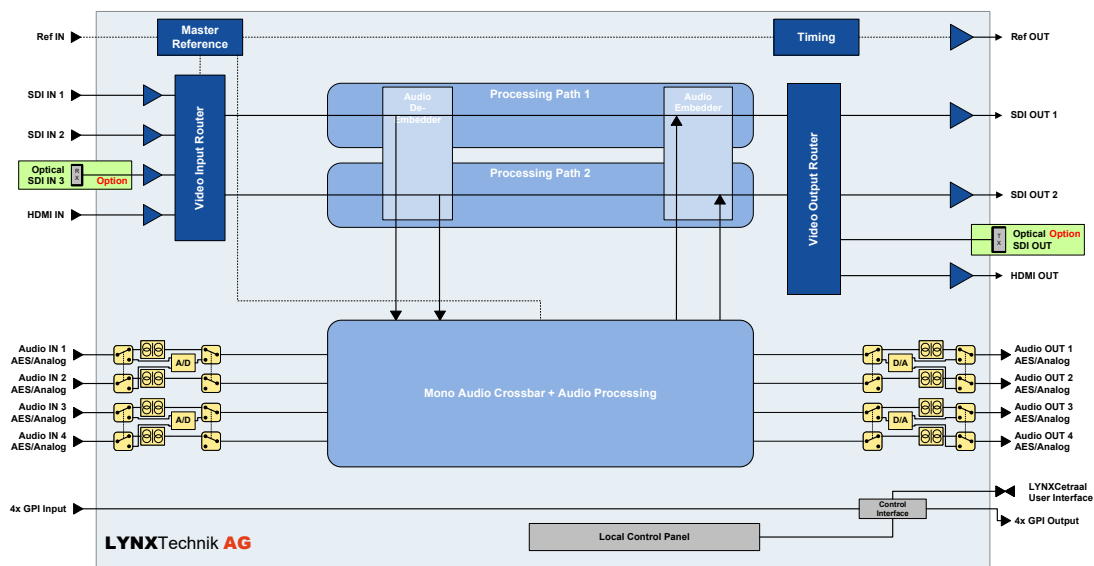The Nova controller (full remote control) is included in the basic framework.

Fiber SFP options are available for one SD/HD/3G-SDI in-/output.

Features

- 2x 3G general purpose AV processing appliance
- Internal input and output signal routers
- Compatible with available greenMachine callisto+ constellations
- Integrated control panel with color display for live image monitoring, audio level meters, status indication and menu driven control interface
- Small footprint: 1RU high x half 19" rack width
- 2x electrical SD/HD/3G SDI inputs. Level A and Level B DL
- 2x electrical SD/HD/3G SDI outputs. Level A and Level B DL
- 1x HDMI input (1.4b) and 1x HDMI output (1.4b) up to 3G
- 1x Analog reference input and output (bi-level or tri-level sync)
- 1x Electrical LAN I/O connection
- 4x Balanced analog audio or digital AES Audio inputs
- 4x Balanced analog audio or digital AES Audio outputs
- 4x GPI inputs and 4x GPI outputs
- 1x Optional SDI fiber I/O (basic fiber or CWDM): SD/HD/3G
- 1x Optional Ethernet LAN fiber connection (basic or CWDM)
- Optional redundant power protection
- Optional 19" rack frame
- Nova controller included: Full remote control using LynxCentraal control software
- Full SNMP V2 support

Functional Diagram

GM6825_callisto+_Rev1.6 Specifications subject to change

LYNXTechnik **AG**® | Broadcast Television Equipment   www.lynx-technik.com

greenMachine®

callisto+
GM6825

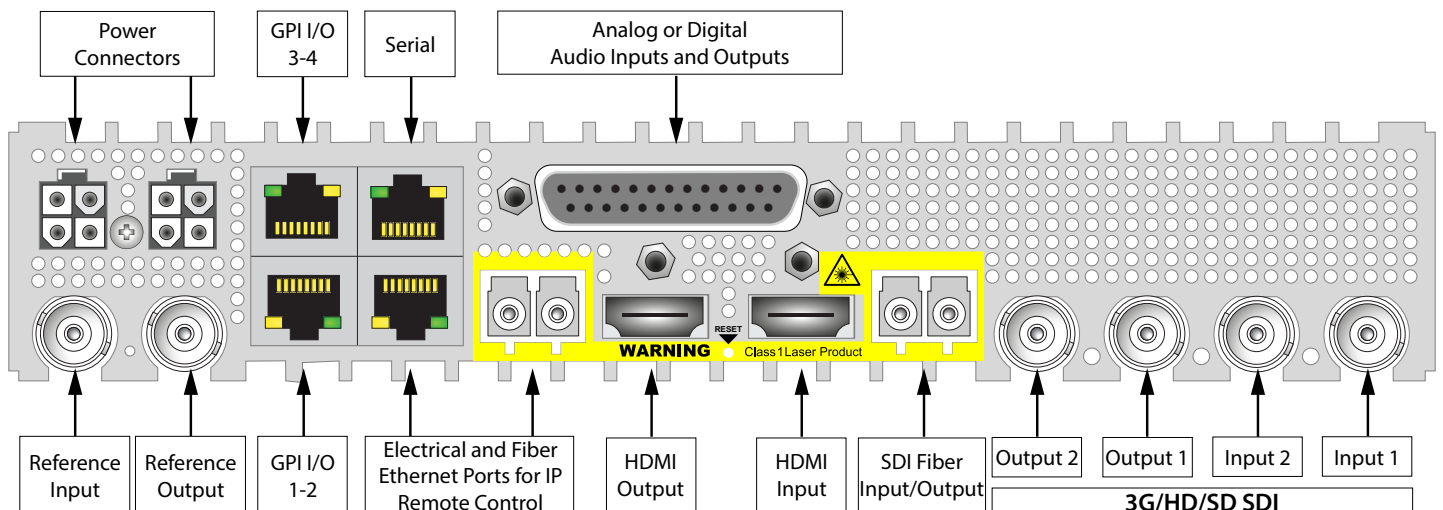## Hardware Specifications

SDI Inputs	2x 3G SDI video on 75 Ohm BNC connector - SMPTE, 292M, 424M, 259M with automatic video format and standard detection	
	Return Loss:	>15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz
	Automatic cable EQ (Belden 1694A):	340m@270Mbit/s, 150m@1.5Gbit/s, 110m@2.97Gbit/s
SDI Output	Analog bi-level (SDTV) or ri-level (HDTV), cross lock capability	
	Timing jitter:	< 0.2 UI @ 270Mbit/s, < 1.0 UI @ 1.5Gbit/s, < 2.0 UI @ 2.97Gbit/s
	Alignment jitter:	< 0.2 UI @ 270Mbit/s, < 0.2 UI @ 1.5Gbit/s, < 0.3 UI @ 2.97Gbit/s
	Return Loss:	>15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz
HDMI	• 1x Input 10 bit HDMI 1.4b (up to 3G) • 1x Output 10 bit HDMI 1.4b (up to 3G)	
Ethernet (LAN)	1x 10/100/1000 BaseT RJ45 Connector	
Optical I/O (Optional)	1x 3G SDI SFP Transceiver (SMPTE 297M - 2006)	
Optical Ethernet (Optional)	IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber @ 1Gbit/s (125 MB/s)	
GPI I/O	• 4x general purpose inputs (RJ45 Connector) • 4x general purpose outputs (RJ45 Connector)	
Reference Input	• 1x analog video reference on 75 Ohm BNC connector • Analog bi-level (SDTV) or tri-level (HDTV) auto detect	
Reference Output	• 1x analog video reference on 75 Ohm BNC connector	
Serial Data	EIA/ETA RS232C / RS422 /RS 485 (selectable through greenGUI) - RJ45 connector ESD protection for up to 16kV	

Audio I/O	4x input and 4x output on Sub-D 25 female connector
	Analog: input impedance >10k Ohm, Output Impedance 150 Ohm
	Analog I/O full scale level: selectable 12, 15, 18, 20, 22, 24 dBu
	Digital: AES3 balanced transformer isolated; Digital output level: 4V peak to peak nom
	64 channel MADI supported on selected constellations (optional MADI SFP required for this)
Power	12VDC @ 45W nominal (supports 7 - 24VDC input range)
	2x power connections for redundant power supply
Mechanical	W: 218mm (1/2 19"), H: 44mm (1.75"), D: 225mm (8.86") - including connectors.
	Weight: 1.28kg (2.82lb)
Ambient	Temperature: 5°C to 40°C (41°F to 104°F) maintaining specification
	Humidity: 90% maximum, non-condensing

Supported SDI Formats

3G-SDI Formats Level A	1080p / 50Hz 1080p / 59.94Hz 1080p / 60Hz		
HDTV Formats	1080i / 50Hz 1080i / 59.94Hz 1080i / 60Hz 1080p / 23.98Hz 1080p / 24Hz 1080p / 25Hz 1080p / 29.97Hz	1080p / 30Hz 1080psf / 23.98Hz 1080psf / 24Hz 1080psf / 25Hz 720p / 23.98Hz 720p / 24Hz 720p / 25Hz	720p / 29.97Hz 720p / 30Hz 720p / 50Hz 720p / 59.94Hz 720p / 60Hz
SDTV Formats	525 / 59.94Hz 625 / 50Hz		

Backplane View

Power Connectors — GPI I/O 3-4 — Serial — Analog or Digital Audio Inputs and Outputs

WARNING — RESET — Class 1 Laser Product

Reference Input — Reference Output — GPI I/O 1-2 — Electrical and Fiber Ethernet Ports for IP Remote Control — HDMI Output — HDMI Input — SDI Fiber Input/Output — Output 2 — Output 1 — Input 2 — Input 1 — **3G/HD/SD SDI**

LYNXTechnik **AG**® | Broadcast Television Equipment   www.lynx-technik.com

Options

RFR 6000 - 1RU 19" Rack Mount Chassis

Rack mounting hardware which can accommodate one or two greenMachines in 1RU of rack space which also securely mounts the power supplies.

One greenMachine in Rack Mount

Note: Two power supplies can be mounted into one RFR 6000. For more information pleae refer to the RFR 6000 quick reference guide.

RXT 6001 19" Rack Extension for RFR 6000

The greenMachine is ideally suited for standalone applications but this powerful processing platform reaches its full potential when used within a system design.

The RXT 6001 is a compact and flexible rack extension for RFR 6000. It can be setup to hold up to four RPS A100 power supplies.

RXT 6001 installed in RFR 6000

RPS A100 - AC to DC Power Supply 12V/8A

The RPS A100 AC to DC Desktop power supply unit provides 100 watts of continuous output power. The power supply is equipped with IEC320-C14 AC inlet.

Plugs are available for regions EU, US and UK as well as an option without a power plug (N).

ABS Case for greenMachine

The transport case is perfect to keep your greenMachine®, cables and documents organized and in one place, while also protecting it from enviromental influences. With it's study design, our ABS Case is the ideal partner to transport your greenMachine® whenever it is not wired in a rack, standalone or any other system you can think of.

The hard shell case protects your greenMachine® from most impacts in an average, busy work environment, while the inner foam coating prevents it from being scratched by cables, connectors or other equipment that can also be stored inside the case.

Fiber Options

The callisto+ is equipped with two SFP sockets which can accommodate a variety of plug in SFP fiber I/O options. One socket is for SDI connectivity and the other is for Ethernet. Fiber options can be added at any time.

Reccommendations below are for optional ethernet communicatuion via fiber.

Basic Ethernet Fiber Transceiver		Power	Sensitivity
OH-TR-51-LC	Ethernet Fiber Transceiver, Singlemode - 10km* - LC - 1310nm	-3dBm	-21dBm
CWDM Ethernet Fiber Transceiver			
OH-TR-54-XXXX-LC **XXXX** = Wavelength	Ethernet Fiber Transceiver, Singlemode - CWDM capable - 40km* - LC	0dBm	-21dBm

* Distance is an approximation. Actual distances achieved can be longer or shorter depending on the type of fiber cable and accumulated optical losses in the fiber link. Determine link losses and perform optical budget calculations to ensure correct operation.

Ordering Information

greenMachine callisto+ Hardware		EAN
GM 6825 EU	greenMachine callisto+ EU (Hardware only)	4250479328501
GM 6825 UK	greenMachine callisto+ UK (Hardware only)	4250479328518
GM 6825 US	greenMachine callisto+ US (Hardware only)	4250479328525
greenMachine callisto+ Constellation License		
GMC-2CUPXD	2CUPXD Constellation License: Dual Channel 3G Up/Down/Cross Converter (License only- includes no hardware)	4250479328136
greenMachine callisto+ Packages		
GMPC-2CUPXD	greenMachine callisto+ 2CUPXD package: Dual Channel 3G Up/Down/Cross Converter incl. greenMachine callisto+(GM 6825), 2x RPS A100 Power Supplies, RFR 6000 Rack Frame, RBO A025 SubD Audio Breakout Board	4250479328143
Accessories and Power Supply		
RFR 6000	1 RU 19" Rack Mount Chassis	4250479324466
RXT 6001	19" Rack Frame Extension for RFR 6000	4250479326507
RPS A100 (N/EU/US/UK)	AC to DC Desktop Power Supply Module 12V/8A (with None / EU / US / UK plug)	4250479327955

Constellation

GMC- 2CUPXD	**2 Channel 3G-SDI Up/Down/Cross Converter** A broadcast quality 3G SDI Up/Down/Cross converter that provides a multitude of conversion and scaling possibilities. The powerful input cropping functionality enables a full Region of Interest (ROI) selection and in addition, the output image size can be adjusted.

For greenMachine the following regulatory and safety standards apply:
CE: EN 55103-1/1996, EN 55103-2 /1996, EN 60950-1/2006
Following the provisions of 2004/108/EC and 2006/95/EC directives.
FCC: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15, Subpart B of the FCC Rules.
The RPS A100 power supply (EA11011D-1200) complies with the following safety standards:
UL/cUL 62368-1, TUV EN 62368-1, CB IEC 62368-1, FCC, CE, BSMI, PSE, RCM, IRAM

LYNXTechnik **AG**® | Broadcast Television Equipment   www.lynx-technik.com