green**Machine Callisto**

Video Processing

SDI 1
SDI 2
SDI Fiber
HDMI

Input Router → Processing Channel 1 (APP Driven) → SDI 1

Processing Channel 2 (APP Driven) → SDI 2

Output Router → SDI Fiber / HDMI / Analog
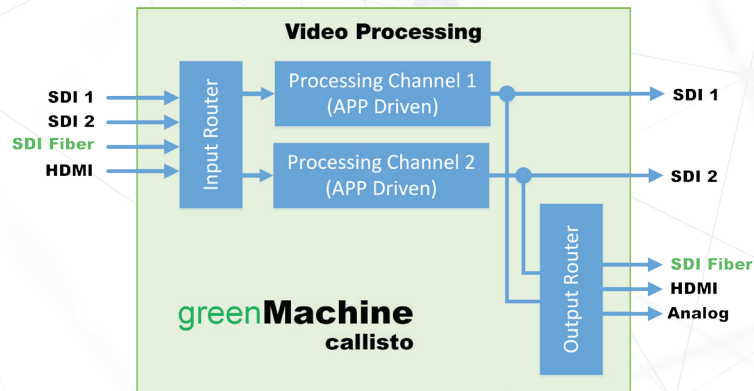
green**Machine** callisto

Features

- 2 channel general purpose A/V processing appliance
- Internal input and output signal routers
- Compatible with all downloadable APPs in the greenStore™
- 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 (1.4a) and 1x HDMI output (1.4a)
- 1x Analog reference input (bi-level or tri-level sync)
- 1x Analog reference (bi-level or tri-level sync) or CVBS composite video output
- 1x Electrical LAN I/O connection

- 4x Balanced analog audio or digital AES Audio inputs
- 4x Balanced analog audio or digital AES Audio outputs
- 2x GPI inputs and 2x GPI outputs
- 1x Optional SDI fiber I/O (basic fiber or CWDM)
- 1x Optional Ethernet LAN Fiber connection (basic or CWDM)
- Optional redundant power protection
- Optional 19" rack frame
- Full remote control using greenGUI control software
- Full SNMP V2 support

Description

The greenMachine approach is unique. The hardware itself is a powerful general purpose audio and video processing appliance that is custom configured using a selection of APPs which are purchased and downloaded from the greenStore™.

You are not limited to one APP per greenMachine, APPs can be mixed, matched and combined to custom build the desired functionality and work-flow in each individual processing channel.

Without any APPs installed the hardware has no real functionality aside from very rudimentary setup functions for basic configuration like IP settings and I/O signal monitoring.

This is an extremely powerful hardware design using the very latest high speed programmable Xilinx technology as well as dual ARM processors. A technology solution ready for today and also the future with a flexible APP driven architecture.

Get the full story at **www.green-machine.com**

APPs
(Examples only - many more are available at the greenStore™)

Frame Synchronizer This utilizes robust "flywheel" synchronization that will accommodate a wide variety of low quality asynchronous SDI sources. All embedded audio is extracted and delayed automatically to match the video processing delay. Audio is free from disturbances even when dropping and adding frames...

Embed/De-embed A high quality multi-format audio embedder and de-embedder application which can embed and / or de-embedd up to 16 mono audio channels in the SDI channel. The embedder can also embed DolbyE signals which in conjunction with the Frame Synchronizer APP will always maintain the Guardband...

Scaler / Video Converter A broadcast quality conversion APP 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...

Audio Processing This is a global APP providing a multitude of audio processing functionality. Each mono audio channel has gain adjustments, mute and inversion, stereo to mono mix-down plus silence and overload monitoring and a1 kHz test signal generator...

For more details and to see the complete portfolio of APPs available, please visit:
www.lynx-technik-greenstore.com

Options

RFR 6000 - 1RU 19" Rack Mount Chassis
Rack mounting hardware which can accommodate one or two green machines in 1RU of rack space which also securely mounts the primary and redundant power supplies.

RPS 6120 - Redundant Power Supply
A second external in line power supply
for redundant power protection.

Fiber Options
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.

Basic SDI Video Fiber Transmitter		Power	
OH-TX-1- LC / ST / SC	SDI Fiber TX SFP - LC / SC or ST -1310nm	-5dBm	
SDI Video Fiber Receiver		**Sensitivity**	
OH-RX-1-LC / ST / SC	SDI Fiber RX SFP - LC / SC or ST (1270-1610nm)	-16dBm	
Basic SDI Video Fiber Transceiver		**Power / Sensitivity**	
OH-TR-1	SDI Fiber Transceiver Singlemode (1310nm)	-5dBm	-18dBm
OH-TR-0-850	SDI Fiber Transceiver Multimode (850nm)	-5dBm	-15dBm
CWDM SDI Video Fiber Transmitter		**Power**	
OH-TX-4-XXXX	SDI Video Fiber Transmitter SFP CWDM (singlemode) 18 wavelengths available according to ITU T G692.2 1270nm through1610nm. **XXXX** = wavelength	-1dBm	
CWDM SDI Video Fiber Transceiver		**Power / Sensitivity**	
OH-TR-4-XXXX	SDI Video Fiber Transceiver SFP CWDM (singlemode) 18 wavelengths available according to ITU T G692.2 1270nm through1610nm. **XXXX** = wavelength	-1dBm	-20dBm
Basic Ethernet Fiber Transceiver		**Power / Sensitivity**	
OH-TR-51	Ethernet Fiber Transceiver. Singlemode - 1310nm	-3dBm	-21dBm
CWDM Ethernet Fiber Transceiver		**Power / Sensitivity**	
OH-TR-54-XXXX	Ethernet Fiber Transceiver SFP CWDM (singlemode) 18 wavelengths available according to ITU T G692.2 1270nm through1610nm. **XXXX** = wavelength	0dBm	-21dBm

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.
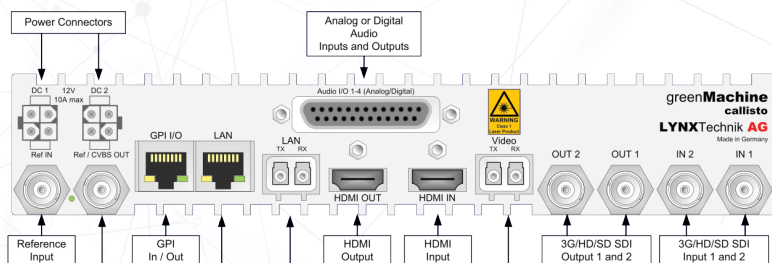
The RPS 6120 power supply (EA11011H-120) complies with the following safety standards: **UL**, **CCC**, **PSE**

Specifications

SDI Input	2x SDI video on 75 Ohm BNC connector
	SMPTE, 292M, 424M, 259M with automatic video format and standard detection
	Electrical Return Loss: >15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz
	Automatic cable EQ (Belden 1694A cable) 340m @ 270Mbit/s, 150m @ 1.5Gbit/s, 110m @ 2.97Gbit/s
HDMI Input	1x 10 bit HDMI 1.4a
	24 bit (3x8 bit) and 30bit (3x10 bit) deep color (R,G,B / Y,Cr,Cb / X,Y,Z)
Optical I/O (Optional)	1x Video SFP Transceiver (SMPTE 297M - 2006)
Ethernet (LAN)	1x 10/100/1000 BaseT RJ45 Connector
Optical Ethernet (Optional)	EEE 802.3z 1000BASE-X Gbit/s Ethernet over Fiber at 1 Gbit/s (125 MB/s)
GPI I/O	2x general purpose inputs + 2x 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 and cross lock capability
SDI Output	2x SDI video on 75 Ohm BNC connector (SMPTE, 292M, 424M, 259M)
	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
	Electrical Return Loss: >15dB from 5MHz to 1.5GHz, >10dB from 1.5GHz to 3GHz
HDMI Output	1x 10 bit HDMI 1.4a
	24 bit (3x8 bit) and 30 bit (3x10 bit) deep color (R,G,B / Y,Cr,Cb / X,Y,Z)
Ref / CVBS Output	1x analog video reference on 75 Ohm BNC connector
	Analog bi-level (SDTV) or CVBS video: 525/59.94Hz, 625/50Hz
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 nominal
Power	12VDC @ 25W 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: 1.1kg (2.43lb)
Ambient	Temperature: 5°C to 40°C (41°F to 104°F) maintaining specification
	Humidity: 90% maximum, non-condensing
Model #	GM 6820 EU - (EAN# 4250479324602)
	GM 6820 UK - (EAN# 4250479324619)
	GM 6820 US - (EAN# 4250479324626)
Includes	greenMachine, primary power supply and AC power cord, SubD 25 audio adapter PCB and quick reference guide (APPs not included - purchased separately from greenStore™)

Power Connectors

Analog or Digital Audio Inputs and Outputs

Audio I/O 1-4 (Analog/Digital)

DC 1 12V 10A max DC 2

Ref IN Ref / CVBS OUT GPI I/O LAN

LAN TX RX Video TX RX

WARNING

HDMI OUT HDMI IN

greenMachine callisto
LYNXTechnik AG
Made in Germany

OUT 2 OUT 1 IN 2 IN 1

Reference Input

Reference Output or CVBS Output

GPI In / Out

Electrical and Fiber Ethernet Ports for IP Remote Control

HDMI Output

HDMI Input

3G/HD/SD SDI Fiber Input and Output

3G/HD/SD SDI Output 1 and 2

3G/HD/SD SDI Input 1 and 2

Rev 1.0 - Specifications subject to change