VMU
Ruggedized Video Management Unit

Low Latency, High Definition Video Routing, Distribution & Processing

The VMU provides low-latency, low-cost video processing and streaming capabilities suitable for demanding high definition video distribution applications.

Providing customizable video input and output support, HD ethernet video input and output streams, or CANbus protocols.

Video routing includes input to any output, picture-in-picture and quad view; combining multiple high-resolution sensors into one display.

Customizable graphics overlay; all video outputs support independent, fully customizable graphics overlay.
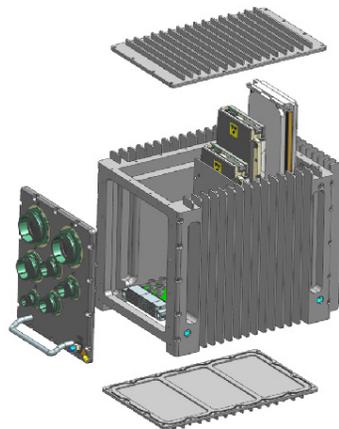
Features:

- Up to 8 HD sources can be streamed over Ethernet.
- Up to 8 HD video streams can be ingested over Ethernet and simultaneously decoded for processing or blending with local sources.
- The VMU supports combining input videos using pixel-based alpha blending as well as chroma keying of any combination of input videos.
- The VMU supports scaling, windowing layering, positioning, and routing as well as the blending of any input or output video.
- Additional user based applications can be added providing direct control and enhancements to the baseline feature set.

Hardware Specifications

Application CPU:	2x Quad Core ARM Cortex A-53 @ 1.3 GHz
Onboard SDRAM:	2x 4GB DDR4 (SoC) with ECC
	2x 4GB DDR4 (FPGA)
	2x 2GB DDR4 (Video Codec Unit)
Network:	2x Gigabit Ethernet
	2x 10 Gigabit Ethernet
Serial:	2x RS422
CANBUS:	1x CANbus
Video Input Interfaces:	4x 12G-SDI up to 3840x2160 resolution (60fps progressive)
	4x SD composite analog (NTSC/PAL)
Video Output Interfaces:	4x 12G-SDI up to 3840x2160 resolution (60fps progressive)
	4x SD composite analog (NTSC/PAL)
Bi-Directional Video Interfaces:	8x 12G-SDI configurable as Input or Output up to 3840x2160 resolution (60fps progressive)
Video Latency:	Less than 1 frame
Video-Over-Ethernet:	00-082 uncompressed encode and decode*
	H.264/H.265 profiles high, main, and baseline encode and decode**
	Support for KLV metadata
	*00-082 Resolution and frame rate dependent on bandwidth of Ethernet ports
	**VCU supports max bandwidth of 4kp60 up to 32 simultaneous streams
Customizable Interfaces through Mezzanine swap:	DVI, VGA, Display Port, SD composite
On-Screen-Display:	Multiple independent OSDs supported (OSD Overlays)
Power Input:	+18-32V DC
Power Consumption:	60W (typical)/ 80W (max)
Operating Systems:	Linux, VxWorks, Android
Chassis Form Factor:	3U VPX

Environmental Specifications

Operating Temperature:	-40 °C to +71 °C
Storage Temperature:	-40 °C to +63 °C
Vibration:	MIL-STD-810F Method 514.5 Procedure I
	Def Stan 00-035 Part 3, Issue 5, Test M1
Nuclear Hardness:	ATPD-2404B Para 5.4

Additional Features

Built-In Test (BIT)

Two level maintenance support

Multiple Line Replaceable Modules (LRMs) for quick field servicing

The product described here represents a general configuration of this family of products. Specifications are configurable for specific customer requirements. For pricing and availability interfaces, casings, connectors and other information, please contact your General Dynamics representative.

Video Processor CCA — DDR4 2GB, DDR4 4GB +ECC, DDR4 4GB; Video Codec Unit, ARM Quad Cortex-A53, ARM Dual Core Cortex-R5, ARM Mali-400 MP2 GPU; 10GBase-T, 1000Base-T, 1x RS422, CANBus, 4x 12G SDI Inputs, 4x 12G SDI Outputs, 4x 12G SDI Bidir, 4x SD Composite Inputs, 4x SD Composite Outputs

4x SERDES Video Sharing

Video Processor CCA — DDR4 2GB, DDR4 4GB +ECC, DDR4 4GB; Video Codec Unit, ARM Quad Cortex-A53, ARM Dual Core Cortex-R5, ARM Mali-400 MP2 GPU; 10GBase-T, 1000Base-T, 1x RS422, 4x 12G SDI Bidir

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