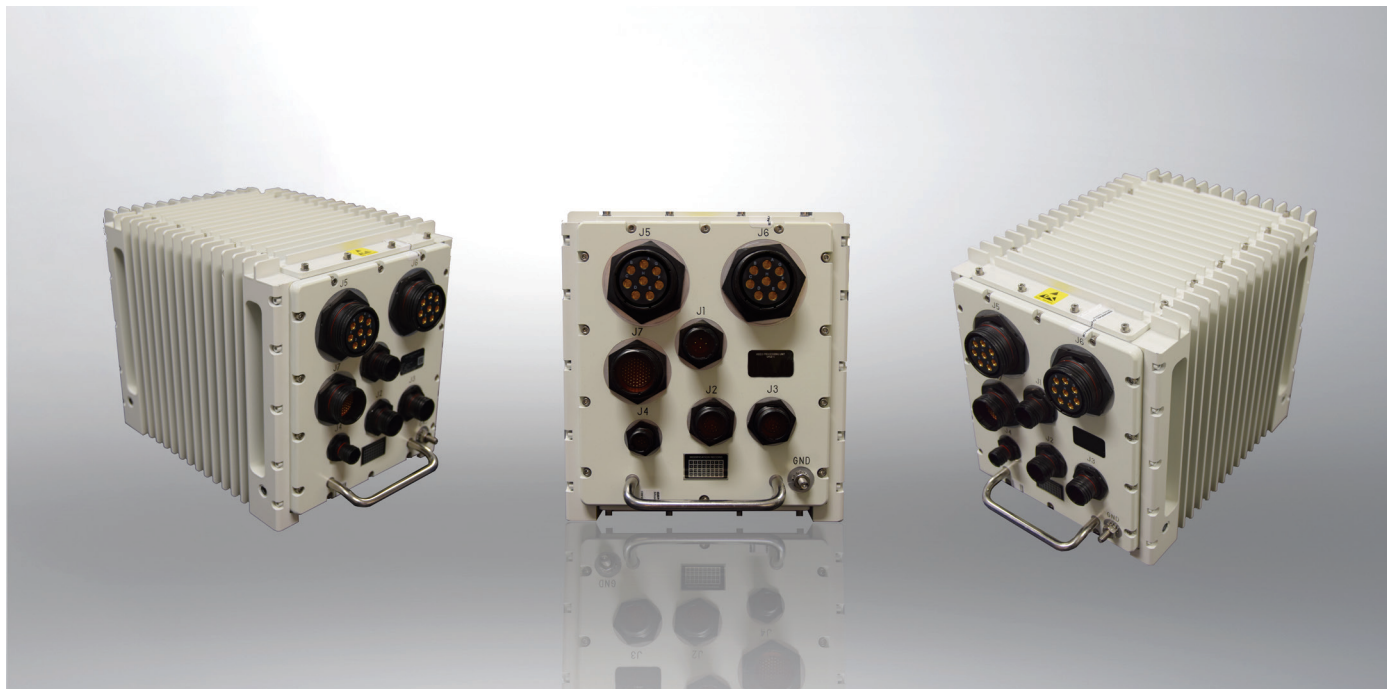


# VMU Ruggedized Video Management Unit

*Low Latency, High Definition Video Routing, Distribution, & Processing*



## Overview:

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

The VMU provides customizable video input and output support as well as HD Ethernet video input and output streams.

Current configurations support:

- » 4x SDI Inputs (Configurable up to 12G-SDI 3840x2160p60 4k resolution)
- » 4x SDI Outputs (Configurable up to 12G-SDI 3840x2160p60 4k resolution)
- » 8x SDI Bidirectional (Configurable up to 12G-SDI 3840x2160p60 4k resolution)
- » 4x SD composite analog inputs (NTSC/PAL)
- » 4x SD composite analog outputs(NTSC/PAL)

Optional Interfaces:

- » 4x DVI Inputs or Outputs
- » 2x VGA Inputs

Accessing the robust feature set can be done via Ethernet or CANbus protocols.

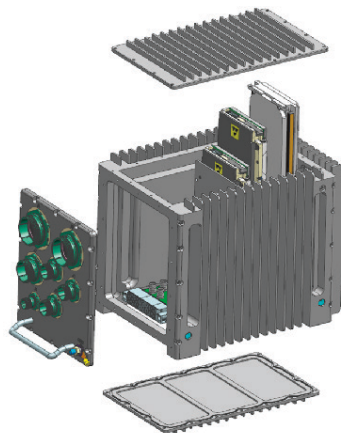
## Features:

- » Video Routing: Any input to any output, including Picture in Picture and Quad View, combining multiple high-resolution sensors into one display.
- » Video Encoding: Up to 8 HD sources can be streamed over Ethernet using either H.264, H.265, or 00-082 encoding including STANAG 4609 KLV metadata.
- » Video Decoding: Up to 8 HD video streams can be ingested over Ethernet and simultaneously decoded for processing or blending with local sources.
- » Sensor Fusion: The VMU supports combining input videos using pixel-based alpha blending as well as chroma keying of any combination of input videos.
- » Customizable Graphics Overlay: All video outputs support independent, fully customizable graphics overlays.
- » Real Time Video Processing: The VMU supports Scaling, Windowing Layering, Positioning, and Routing as well as the blending of any input or output video.
- » 3U VPX Architecture, conduction cooled, consisting of 2 video processors and spare GPU slot with VPX power supply (MIL-STD-1275).
- » Quad-core A53 Cortex Processor: Each processing card has an ARM Quad Cortex-A53 MPCore processor with ARM Dual Core Cortex-R5 processors and an ARM Mali-400 MP2 GPU processor used to provide maximum flexibility to the VMU. Additional user based applications can be added providing direct control and enhancements to the baseline feature set.

# Technical Information

## 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 10Gigabit 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



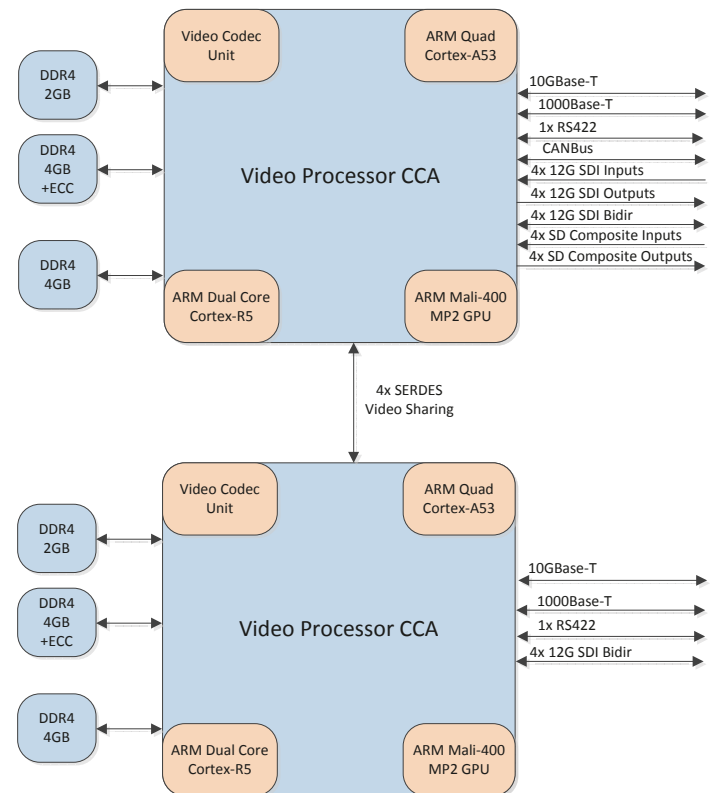
## Environmental Specifications

Operating Temperature:	-40C to +71C
Storage Temperature:	-40C to +63C
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.



## GENERAL DYNAMICS

Mission Systems

1941 Robertson Road • Ottawa, Ontario • CANADA • K2H 5B7 • Phone +1 613-596-7000 • info@gd-ms.ca • www.gd-ms.ca