

AD-01490



Applications

- Development Platform for Space
- In-orbit reconfigurable compute
- High Performance Signal and Image Processing
- Advanced Communications
- Machine Learning and AI

Board Features

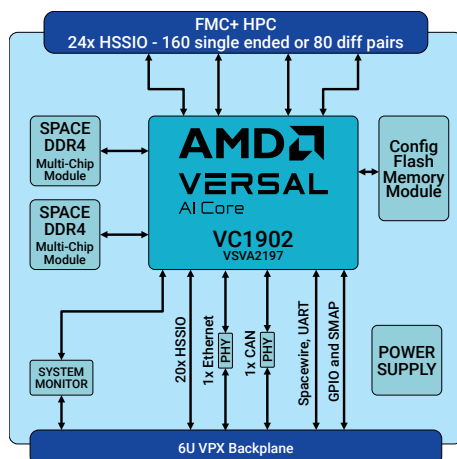
- Fully radiation tolerant reference design
- Versal VC1902 Adaptive SoC for Space
- Reference full radiation tolerant Power Supply using SEP grade parts from TI and GaN FETs from EPC Space
- 6U Space VPX form factor (220mm deep)
- 24x 26.56G HSSIO via FMC+ Interface
- 2x Teledyne e2v Space Grade DDR4 Memory Banks (8GB per bank: 16GB total)
- Reference TI SEP clocking and IO buffering
- Rad-tolerant System Monitoring microcontroller

Summary

The **ADM-VA601** is a 6U Space VPX reference platform for the AMD Versal AI Core XQRCV1902 Adaptable SoC platform for Space. This successor to the **ADM-VA600** replaces the design with a larger 220mm deep Space VPX form factor board and supports a full radiation tolerant core power supply developed with TI and EPC Space capable of up to 160A performance.

Versal AI Core provides a massive leap forward in reconfigurable and customizable processing performance for Space mission deployment of compute-intensive applications such as Signal Processing and Machine Learning. The platform is designed to accept components suitable for a range of radiation environments or mission lengths. The standard /DEV/PB version is for development purposes and fitted with commercial/no-flight components.

The board features reference Space Grade power supplies co-designed with Texas Instruments and EPC Space, along with many other Space Enhanced Plastic devices covering clocking and system monitoring functionality. The board also features Space Grade DDR4 Memory modules from Teledyne e2v.



Target Devices

AMD Versal AI Core
XCVC1902-1MSIVSVA2197 (default),
XQRCV1902-1MSBVSVA2197 (flight units)
(option)

FPGA Specification

LUTs = 899K(899K)
DSPs = 1968(1968)
BRAM = 34Mb
URAM = 130Mb
400x AI Engine Tiles
2x ARM Cortex-A72 MPCores™
2x ARM Cortex-R5 MPCores
4x PCI Express Gen3 cores

Application Data Memory

2x 8GB (1G @ 72bits wide) DDR4 MCP

Configuration Memory

QSPI MRAM or Flash - on daughter module
2Gb

Configuration Modes

Via QSPI daughter module, uSD and via
JTAG

Input/Output Interfaces

FMC+ HSSIO (FMC+)

24x HSSIO up to 26.56G via FMC+ module:
Configurable for JESD204B; JESD204C;
10/40/100G Ethernet; SpaceFibre etc.

VPX HSSIO (VPX Backplane)

20x HSSIO up to 10G via VPX Backplane:
Configurable for 10/40G Ethernet; SpaceFibre;
PCIe; RIO; Aurora; HSDP etc.

VPX I2C (VPX Backplane)

1x I2C for System Monitor

VPX JTAG (VPX Backplane)

1x JTAG for System Monitoring, configuration and
testing

VPX Ethernet (VPX Backplane)

1x 1G Ethernet Interface on VPX for Versal
access and management

VPX Low Speed IO (VPX Backplane)

1x UART and CAN bus access

VPX GPIO (VPX Backplane)

1x Custom GPIO breakout to backplane

VPX SMAP (VPX Backplane)

1x SMAP to allow configuration options from
external card in VPX system

Deliverables

ADM-VA601 Board
One Year Warranty
One Year Technical Support

Board Format

6U VPX (233mm x 220mm x 12.5mm)
WxHxD = 233mm x 12.5mm x 220mm
Weight = 390/1505g

Environmental Specification**Temperature Ranges**

Operating Temperature Range : 0°C to +55°C
Storage Temperature Range : -40°C to +85°C
Operating Humidity : Up to 95% (non-condensing)

Order Code: ADM-VA601(T)

Platform Type	T	/DEV - ADM-VA601/DEV/PB - with XCVC1902 fitted, purchasable as part of ADK-VA601 Development Kit