

AD-01490



Applications

- COTS Development Platform for Space 2.0
- 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 2.0
- 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 32G 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

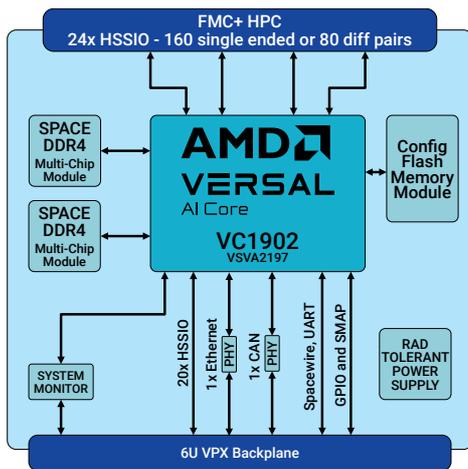
Summary

The **ADM-VA601** is a 6U Space VPX reference platform for the AMD Versal AI Core XQRVC1902 Adaptable SoC for Space 2.0. This successor to the **ADM-VA600** features 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 Space 2.0 level missions with limited radiation environment or mission length, such as LEO applications. The standard /DEV version is for development purposes and fitted with commercial/ no-flight components. Fully radiation tolerant and space flight versions are available. (Contact sales for details.)

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.

See the **ADK-VA600** page for the complete system overview.



Target Devices

AMD Versal AI Core
XCVC1902-1MSIVSVA2197 (default),
XQRVC1902-1MSBVSVA2197 (flight units)
(option)

LUTs = 899K DSPs = 1968
BRAM = 34Mb URAM = 130Mb

400x AI Engine Tiles
2x ARM Cortex-A72 MPCore™
2x ARM Cortex-R5 MPCore
4x PCI Express Gen3 cores

Application Data Memory

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

Configuration Memory

QSPI MRAM or Flash - on daughter module
2Gb Flash Memory

Configuration Modes

Via QSPI daughter module, uSD and via JTAG

Deliverables

ADM-VA601 Board
One Year Warranty
One Year Technical Support

Input/Output Interfaces

FMC+ HSSIO

24x HSSIO up to 32G via FMC+ module:
Configurable for JESD204B; JESD204C;
10/40/100G Ethernet; SpaceFibre etc.

VPX HSSIO

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

VPX I2C

I2C for System Monitor

VPX JTAG

JTAG for System Monitoring

VPX Ethernet

1G Ethernet Interface on VPX for Versal access
and management

VPX Low Speed IO

UART and CAN bus access

VPX GPIO

Custom GPIO breakout to backplane

VPX SMAP

SMAP to allow configuration options from external
card in VPX system

Board Format

6U VPX (233mm x 220mm x 12.5mm)
 WxHxD = 233mm x 12.5mm x 220mm
 Mass = TBDg

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)

Developed in partnership with


Ordering Information

Order Code: ADM-VA601(T)

Option	Code	Description of Options
Platform Type	T	Default -/DEV/PB - with XCVC1902 fitted, purchasable as part of ADK-VA601 Development Kit, /FM - build to order with Space Qualified Components, /C(x) - build to order with Customer Specific Modifications