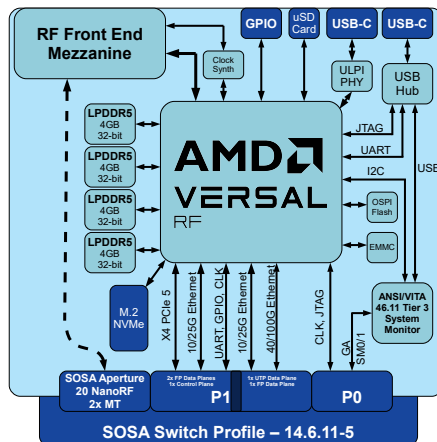


AD01566



### Applications

- RF Signal Sampling/Generation
- Electromagnetic Spectrum Operations (EMSO)
- Radar Systems
- MilCom
- RF Signal Sampling/Generation
- Beamforming
- Signal Detection/Jamming
- Pre-6G Systems

### Board Features

- 14-bit x 16 ADC and 16 DAC channels capable of Multi-Gigasample data conversion
- AMD Versal hardened and re-configurable logic and DSP processing
- AMD Versal multi-core control and computation Processing System
- 18GHz front end bandwidth

### Summary

This Versal RF, 14.6.11 SOSA-Aligned 3U VPX module delivers all the advantages of AMD's latest RF platform in a common industry standard and deployable form factor.

Versal RF offers 16 DACs and 16 ADCs at 14-bit resolution with up to 18GHz bandwidth combined with powerful hardened IP for FFT, channelization, LDPC decode, and resample. Alpha Data is proud to deliver these uncompromised design resources in an industry standard 3U VPX SOSA-Aligned form factor. Features include: 32 channel wideband ADC/DAC connectivity (subset of 19 selectable), RF clock reference inputs, PCIe Gen5x4 or PCIe Gen4x8, NVMe storage, 10G/40G/100G Ethernet, GPIO, USB host, system monitoring, USB JTAG programming.

### Target Device

AMD Versal RF  
VR1602 (VSA2488)

### Host Interface

PCI Express Gen5x4(or Gen4x8)  
2x Ethernet  
(100G/50G/40G/4x25G/4x10G/1x10G)

### FPGA Specification

Cells = 1.2M  
DSPs = 2256  
BRAM = 39Mb  
URAM = 100Mb  
16x 14-bit 8GSPS RF-ADC  
16x 14-bit 16GSPS RF-DAC  
2x ARM® Cortex™-A72 (APU)  
2x ARM® Cortex™-R5F (RPU)  
2x 100G Multirate Ethernet MAC  
1x PCIe Gen5x4 (or Gen4x8)  
4x DDR5 Memory Controllers

### Input/Output Interfaces

**High-Frequency Analogue Inputs (VPX Aperture)**  
16x 14-bit 8GSPS RF-ADC BW 18GHz  
Resolution: 14-bit  
Max Sample Freq: 8Gsps  
Connector: Nano RF

**High-Frequency Analogue Outputs (VPX Aperture)**  
16x 14-bit 16GSPS RF-DAC BW 18GHz  
Resolution: 14-bit  
Max Sample Freq: 16Gsps  
Connector: Nano RF

### Application Data Memory

4x 32Gb LPDDR5 SDRAM - 32-bit  
1x 16GB 50MHz microSD

### Configuration Memory

OSPI 2Gb

### Configuration Modes

PS - Configured via OSPI or uSD

**Digital I/O (VPX Aperture)**  
8x Reference Clocks and Synchronization

**General Purpose I/O (P1)**  
1x GPIO (single ended)

**Low-Speed Serial I/O (P1)**  
2x Maintenance Port (2)

**High-Speed Serial I/O (P1)**  
1x Control Plane - 10G Ethernet  
1x Data Plane - 10/25/40/100G Ethernet  
1x Data Plane - 10G Ethernet  
1x Expansion Plane - x4 PCIe Gen 5

**Serial Low-Speed Comms (P0)**  
2x IPMC compliant redundant I2C

**Onboard USB Comms (Front I/O)**  
1x JTAG and System Monitor  
1x FPGA USB Interface

**uSD Configuration Interface (Front I/O)**  
1x uSD Configuration Interface

**General Purpose I/O (Front I/O)**  
34 x GPIO (Differential or Single Ended)

### Support

Targeted Reference Design and Board Support Package.

### Deliverables

ADA-VA330 Board  
One Year Warranty  
One Year Technical Support

### Board Format

3U VPX (SOSA Aligned - VITA 46 and 65)  
WxHxD = 149mm x 74mm x 12.72mm  
Weight = TBDg

### Environmental Specification

| Cooling<br>Option | Operating Temperatures |       | Storage Temperatures |        |
|-------------------|------------------------|-------|----------------------|--------|
|                   | Min                    | Max   | Min                  | Max    |
| CC1               | -40°C                  | +85°C | -55°C                | +100°C |

Operating Humidity : Up to 95% (non-condensing)

**Order Code: ADA-VA330(d)(s)(r)(c)(a)**

|                   |                                         |                                                                          |
|-------------------|-----------------------------------------|--------------------------------------------------------------------------|
|                   |                                         |                                                                          |
|                   |                                         |                                                                          |
| Device            | d                                       | /1602 = XCVR1602<br>/1652 = XCVR1652                                     |
| Speed Grade       | s                                       | -2MSE = -2MSE                                                            |
| RF Front I/O      | r                                       | /WB = Wideband high-density from I/O<br>/PASS = Pass-through passive I/O |
| Cooling           | c                                       | /CC1 = conduction cooled industrial                                      |
| Conformal Coating | a                                       | blank = no conformal coating<br>/A = Acrylic<br>/P = Polyurethane        |
| Note              | Please Contact sales for other options. |                                                                          |