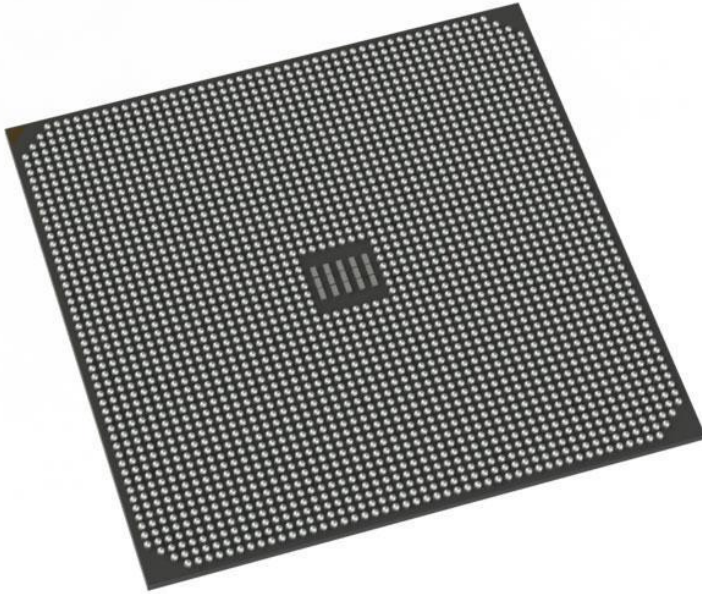


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XCV1502-3HSEVSVA3340

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HSEVSVA3340 Datasheet

DiGi Electronics Part Number XCV1502-3HSEVSVA3340-DG

Manufacturer [AMD](#)

Manufacturer Product Number XCV1502-3HSEVSVA3340

Description IC VERSAL PREM ACAP FPGA 3340BGA

Detailed Description Dual ARM® Cortex®-A72 MPCore™ with CoreSight™, Dual ARM®Cortex™-R5F with CoreSight™ System On Chip (SOC) IC Versal® Premium Versal™ Premium FPGA, 3.7M Logic Cells 800MHz, 1.7GHz 3340-FCBG A (55x55)

Tel: +00 852 30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

XCVP1502-3HSEVSVA3340

Series:

Versal® Premium

Architecture:

MPU, FPGA

Flash Size:

-

Peripherals:

DDR, DMA, PCIe

Speed:

800MHz, 1.7GHz

Operating Temperature:

0°C ~ 100°C (TJ)

Supplier Device Package:

3340-FCBGA (55x55)

Manufacturer:

AMD

Product Status:

Active

Core Processor:

Dual ARM® Cortex®-A72 MPCore™ with CoreSight™, Dual ARM®Cortex™-R5F w

RAM Size:

256KB

Connectivity:

CANbus, EBI/EMI, Ethernet, I2C, MMC/SD/SDIO, SPI, UART/USART, USB OTG

Primary Attributes:

Versal™ Premium FPGA, 3.7M Logic Cells

Package / Case:

3340-BFBGA, FCBGA

Number of I/O:

486

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AMD Versal™ AI Core Series Product Selection Guide

AMD Versal™ AI Core Series – Resources

All parameters listed are maximum values. Verify all data in this document with the device data sheets or product guides.

| | VC1502 | VC1702 | VC1802 | VC1902 | VC2602 | VC2802 | |
|------------------------|---------------------------------|--|-------------|-------------|-------------|-------------------|-------------------|
| AI Engine | AI Engines Tiles | 198 | 304 | 300 | 400 | 0 | 0 |
| | AI Engine-ML Tiles | 0 | 0 | 0 | 0 | 152 | 304 |
| | AI Engine Data Memory (Mb) | 50 | 76 | 75 | 100 | 76 | 152 |
| | AIE-ML Shared Memory (Mb) | 0 | 0 | 0 | 0 | 304 | 304 |
| Programmable Logic | System Logic Cells (K) | 815 | 981 | 1,586 | 1,968 | 820 | 1,139 |
| | LUTs | 372,352 | 448,512 | 725,000 | 899,840 | 375,000 | 520,704 |
| | DSP Engines | 1,032 | 1,312 | 1,600 | 1,968 | 984 | 1,312 |
| | Distributed RAM (Mb) | 11 | 14 | 22 | 27 | 11 | 16 |
| Memory | Total Block RAM (Mb) | 30 | 34 | 28 | 34 | 17 | 21 |
| | UltraRAM (Mb) | 110 | 130 | 91 | 130 | 63 | 74 |
| | Accelerator RAM (Mb) | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total PL Memory (Mb) | 151 | 178 | 141 | 191 | 91 | 111 |
| | DDR Memory Controllers (DDRM/C) | 3 | 3 | 4 | 4 | 3 | 3 |
| | DDR Bus Width | 192 | 192 | 256 | 256 | 192 | 192 |
| Processing System | Application Processing Unit | Dual-core Arm® Cortex®-A72, 48 KB/32 KB L1 Cache w/ parity & ECC; 1 MB L2 Cache w/ ECC | | | | | |
| | Real-Time Processing Unit | Dual-core Arm Cortex-R5F, 32 KB/32 KB L1 Cache, and 256 KB TCM w/ECC | | | | | |
| | Memory | 256 KB On-Chip Memory w/ECC | | | | | |
| | Connectivity | Ethernet (x2); UART (x2); CAN-FD (x2); USB 2.0 (x1); SPI (x2); I2C (x2) | | | | | |
| Serial Transceivers | GTY Transceivers | 32 | 44 | 44 | 44 | 0 | 0 |
| | GTYP Transceivers | 0 | 0 | 0 | 0 | 32 ⁽¹⁾ | 32 ⁽¹⁾ |
| Integrated Protocol IP | PCIe® w/DMA (CPM4) | 1 x Gen4x16 | 1 x Gen4x16 | 1 x Gen4x16 | 1 x Gen4x16 | – | – |
| | PCIe w/DMA (CPM5) | – | – | – | – | 2 x Gen5x8 | 2 x Gen5x8 |
| | PCIe (PL PCIE4) | 4 x Gen4x8 | 4 x Gen4x8 | 4 x Gen4x8 | 4 x Gen4x8 | – | – |
| | PCIe (PL PCIE5) | – | – | – | – | 4 x Gen5x4 | 4 x Gen5x4 |
| | 100G Multirate Ethernet MAC | 3 | 4 | 4 | 4 | 2 | 2 |
| Platform | Video Decoder Engines (VDEs) | – | – | – | – | 2 | 4 |
| | Platform Management Controller | Boot, Security, Safety, Monitoring, and High-Speed Debug | | | | | |
| Ordering Information | Extended Temp ⁽²⁾ | -1MSE, -1LSE, -2MSE, -2MLE, -2LSE, -2LLE | | | | | |
| | Industrial Temp ⁽²⁾ | -1MSI, -1MLI, -1LSI, -1LLI, -2MSI, -2MLI, -2LLI, -2HSI | | | | | |

Notes:

- 16 GTYP transceivers are dedicated to CPM5 for PCI Express use.
- In extended and industrial temperature grades, some ordering combinations can operate for a limited time with a junction temperature of 110°C. Timing parameters adhere to the same speed file at 110°C as they do below 110°C, regardless of operating voltage. Operation at 110°C Tj is limited to 3% of the device lifetime and can occur sequentially or at regular intervals as long as the total time does not exceed 3% of device lifetime.

AMD Versal™ AI Core Series – Packaging

| | | VC1502 | VC1702 | VC1802 | VC1902 | VC2602 | VC2802 |
|----------|-------------------------|-----------------|--|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Package | Package Dimensions (mm) | Ball Pitch (mm) | XPIO DDR Only, XPIO DDR+PL, XPIO PL Only HDIO, MIO GTY, GTYP | | | | |
| NSVG1369 | 35x35 | 0.92 | 132, 246, 0 22, 78 24, 0 | 132, 246, 0 44, 78 24, 0 | | | |
| NSVH1369 | 35x35 | 0.92 | | | | 132, 192, 0 44, 78 0, 32 | 132, 192, 0 44, 78 0, 32 |
| VSVA1596 | 37.5x37.5 | 0.92 | 132, 246, 0 22, 78 32, 0 | 132, 246, 0 44, 78 32, 0 | | | |
| VIVA1596 | 40x40 | 0.92 | | | 132, 246, 0 44, 78 32, 0 | 132, 246, 0 44, 78 32, 0 | |
| VSVD1760 | 40x40 | 0.92 | | | 186, 462, 0 0, 78 24, 0 | 186, 462, 0 0, 78 24, 0 | |
| VSVH1760 | 40x40 | 0.92 | | | | 186, 300, 0 44, 78 0, 32 | 186, 300, 0 44, 78 0, 32 |
| VSVA2197 | 45x45 | 0.92 | 192, 294, 0 22, 78 32, 0 | 192, 294, 0 44, 78 44, 0 | 186, 462, 0 44, 78 44, 0 | 186, 462, 0 44, 78 44, 0 | |

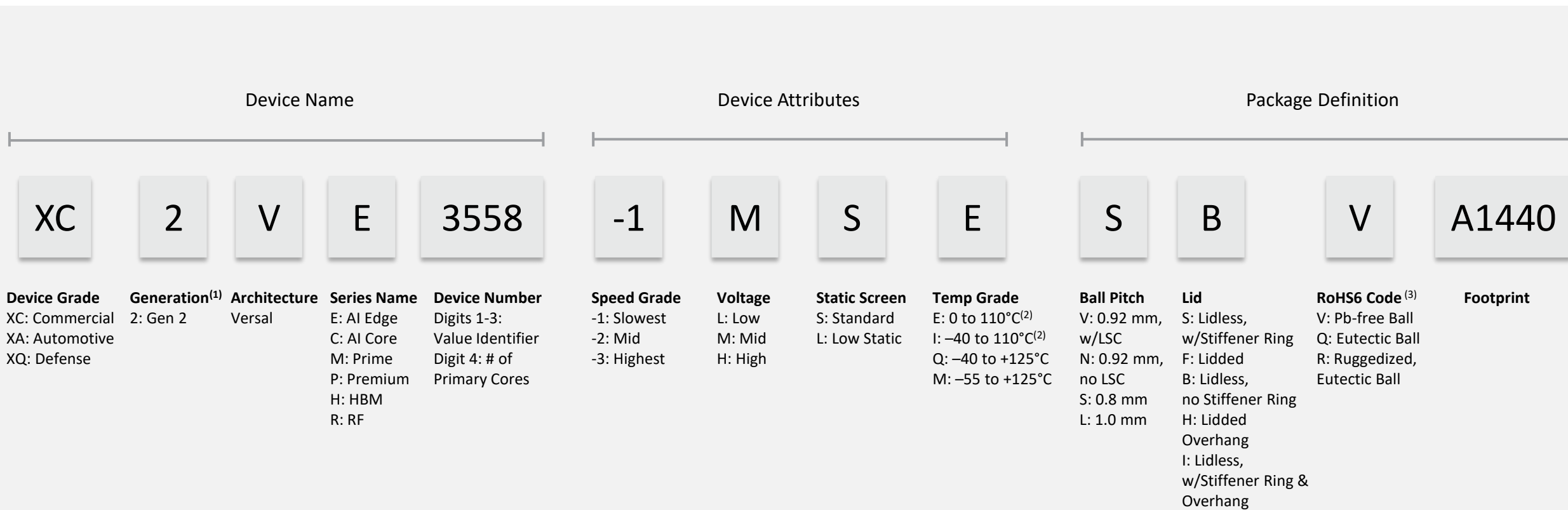
All parameters listed are maximum values. Verify all data in this document with the device data sheets or product guides.

AMD Versal™ AI Core Series – Figures of Merit

| | | VC1502 | VC1702 | VC1802 | VC1902 | VC2602 | VC2802 |
|--------------------|-----------------------------------|--------------|--------|--------|--------|--------|--------|
| AI Engine | AI Engine Peak Perf – INT8 | TOPS | 66 | 101 | 100 | 133 | 202 |
| | AI Engine Peak Perf – INT8x16 | TOPS | 33 | 51 | 50 | 67 | 101 |
| | AI Engine Peak Perf – INT16 | TOPS | 16 | 25 | 25 | 33 | 51 |
| | AI Engine Peak Perf – CINT16 | Complex TOPS | 4.1 | 6.3 | 6.2 | 8.3 | 12.6 |
| | AI Engine Peak Perf – FP32 | TFLOPs | 4.1 | 6.3 | 6.2 | 8.3 | 16.6 |
| | AI Engine Peak SRAM Bandwidth | Tb/s | 264 | 405 | 399 | 532 | 405 |
| Programmable Logic | DSP Engine Peak Perf – INT8 | TOPS | 7.1 | 9.1 | 11.0 | 13.6 | 9.1 |
| | DSP Engine Peak Perf – INT24 | TOPS | 2.4 | 3.0 | 3.7 | 4.5 | 3.0 |
| | DSP Engine Peak Perf – CINT18 | Complex TOPS | 1.0 | 1.3 | 1.6 | 1.9 | 1.3 |
| | DSP Engine Peak Perf – FP32 | TFLOPs | 1.7 | 2.1 | 2.6 | 3.2 | 2.1 |
| Processing System | Arm® Cortex-A72 Performance | DMIPs | 18,942 | 18,942 | 18,942 | 18,942 | 19,516 |
| | Arm Cortex-R5F Performance | DMIPs | 2,672 | 2,672 | 2,672 | 2,672 | 2,672 |
| Memory | Total Bandwidth - Block RAM | Tb/s | 122 | 137 | 115 | 139 | 86 |
| | Total Bandwidth - Ultra RAM | Tb/s | 41 | 49 | 35 | 49 | 28 |
| | Total Bandwidth - Accelerator RAM | Tb/s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Total SRAM Bandwidth | Tb/s | 164 | 186 | 150 | 188 | 114 |
| I/O | Transceiver Bandwidth | Tb/s | 1.81 | 2.48 | 2.48 | 2.48 | 2.10 |
| | Sensor I/O Bandwidth | Gb/s | 941 | 941 | 1,478 | 1,478 | 960 |
| Platform | DDR4 Memory Bandwidth | GB/s | 76.8 | 76.8 | 102.4 | 102.4 | 76.8 |
| | LPDDR4 Memory Bandwidth | GB/s | 102.4 | 102.4 | 136.5 | 136.5 | 102.4 |
| | NoC Cross-sectional Bandwidth | Tb/s | 1.7 | 1.7 | 2.2 | 2.2 | 1.7 |

All parameters listed are maximum values. Verify all data in this document with the device data sheets or product guides.

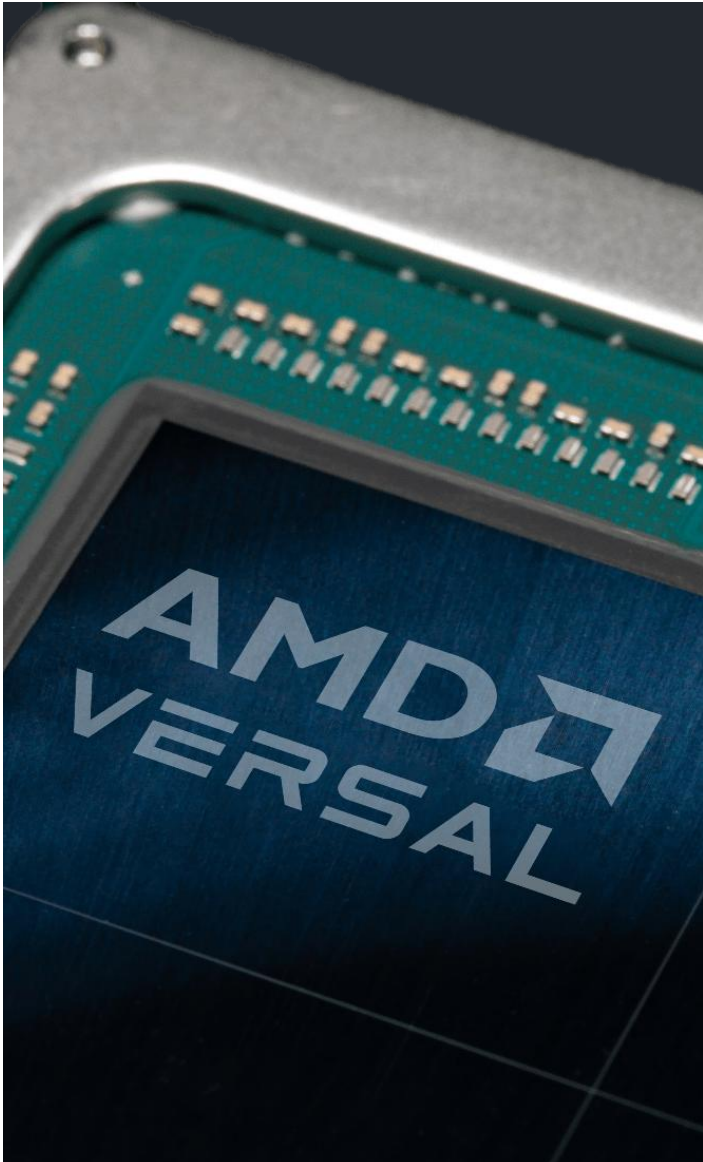
AMD Versal™ Device Ordering Information



Note:

1. This character is only present in Versal AI Edge Series Gen 2, Prime Series Gen 2, and Premium Series Gen 2 devices.
2. Operation at 110°C Tj is limited to 3% of the device lifetime and can occur sequentially or at regular intervals as long as the total time does not exceed 3% of device lifetime—except -1E and -3E (standard 0–100°C).
3. All packages have Pb-free bumps.

AMD Versal™ Adaptive SoC Portfolio



| | | |
|------------------------------|--|-----------------|
| <p><u>Prime Series</u></p> | <p>Mid-Range Devices with Option for High-End Scalar Compute</p> <ul style="list-style-type: none"> Gen 1: Broad range of capabilities incl. PCIe® Gen 5, DDR5/LPDDR5¹ Gen 2: Adds up to 10X scalar compute², LPDDR5X, VCU | General-Purpose |
| <p><u>Premium Series</u></p> | <p>High-End Devices Maximizing Connectivity, Hard IP, & DSP</p> <ul style="list-style-type: none"> Gen 1: 112G SerDes, PCIe Gen 5, DDR4, High-Speed Crypto, AIE Gen 2: Adds 128G SerDes, PCIe Gen 6, CXL® 3.1, DDR5/LPDDR5X | |
| <p><u>HBM Series</u></p> | <p>Adds Integrated HBM Memory to Premium Series Capabilities</p> <ul style="list-style-type: none"> 8, 16, or 32 GB of HBM2e per device 6X memory bandwidth at up to 65% lower power³ | Specialized |
| <p><u>AI Edge Series</u></p> | <p>End-to-End Acceleration for AI-Driven Embedded Systems</p> <ul style="list-style-type: none"> Gen 1: PL for preprocessing, AIE-ML for high-perf. inference Gen 2: Adds up to 10X scalar compute² for postprocessing, add'l FuSa | |
| <p><u>AI Core Series</u></p> | <p>High-Throughput DSP & AI in a Mid-Size Footprint</p> <ul style="list-style-type: none"> AIE for strong DSP performance/watt & perf/area AIE-ML for high-performance inference w/PCIe Gen 5, 100 GbE | |
| <p><u>RF Series</u></p> | <p>Integrated RF-ADC/RF-DACs w/New DSP Hard IP</p> <ul style="list-style-type: none"> 16 GSPS RF-DACs, 8 GSPS or 32 GSPS RF-ADCs, AIE FFT/iFFT, Channelizer, LDPC, Frac. Resampler, Polyphase Filters | |

1. DDR5/LPDDR5 support is available in the VM2152 device. All other first-generation Versal Prime Series devices support DDR4/LPDDR4/LPDDR4X.

2. Pre-silicon estimated performance. See Endnotes VER-027.

3. See Endnotes VER-013.



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