



Product Selection Guide

Data Center Accelerator Cards



*Breathe New Life
into Your Data Center*

| | Feature | Alveo U200 | Alveo U250 | Alveo U280 | Alveo U50 |
|------------------------------|---|--|---|---|--|
| Dimensions | Width | Dual Slot | Dual Slot | Dual Slot | Single Slot |
| | Form Factor, Passive Form Factor, Active | Full Height, ¾ Length Full Height, Full Length | Full Height, ¾ Length Full Height, Full Length | Full Height, ¾ Length Full Height, Full Length | Half Height, ½ Length |
| Logic Resources ¹ | Look-Up Tables | 1,182K | 1,728K | 1,304K | 872K |
| | Registers | 2,364K | 3,456K | 2,607K | 1,743K |
| | DSP Slices | 6,840 | 12,288 | 9,024 | 5,952 |
| DRAM Memory | DDR Format | 4x 16GB 72b DIMM DDR4 | 4x 16GB 72b DIMM DDR4 | 2x 16GB 72b DIMM DDR4 | – |
| | DDR Total Capacity | 64GB | 64GB | 32GB | – |
| | DDR Max Data Rate | 2400MT/s | 2400MT/s | 2400MT/s | – |
| | DDR Total Bandwidth | 77GB/s | 77GB/s | 38GB/s | – |
| | HBM2 Total Capacity | – | – | 8GB | 8GB |
| | HBM2 Total Bandwidth | – | – | 460GB/s | 316GB/s ⁴ |
| Internal SRAM | Total Capacity | 43MB | 57MB | 43MB | 28MB |
| | Total Bandwidth | 37TB/s | 47TB/s | 35TB/s | 24TB/s |
| Interfaces | PCI Express® | Gen3 x16 | Gen3 x16 | Gen3 x16, 2xGen4 x8, CCIX | Gen3 x16, 2xGen4 x8, CCIX |
| | Network Interface | 2x QSFP28 | 2x QSFP28 | 2x QSFP28 | U50 ² - 1x QSFP28 U50DD ³ - 2x SFP-DD |
| Power and Thermal | Thermal Cooling | Passive, Active | Passive, Active | Passive, Active | Passive |
| | Typical Power | 100W | 110W | 100W | 50W |
| | Maximum Power | 225W | 225W | 225W | 75W |
| Time Stamp | Clock Precision | – | – | – | IEEE Std 1588 |
| Tool Support | Vitis™ Developer Environment | Yes | Yes | Yes | Yes |
| Solutions | Solutions & Libraries | Acceleration Application Libraries and Solutions | | | |

Alveo™ Data Center Accelerator Cards

Notes

- Logic resources shown without platform usage; refer to card user guides for platform resource usage.
- U50 is a production qualified card for volume deployment.
- U50DD is an engineering sample card not for volume production.
- A-U50DD-P00G-ES3-G and A-U50-P00G-PQ-G measured 316GB/s peak HBM2 bandwidth, 201 GB/s nominal.

| | | Feature | Alveo U25 |
|-----------------|------------------------------|---------------|--|
| Dimensions | Width | | Single Slot |
| | Form Factor | | Half Height, ½ Length |
| Logic Resources | Look-Up Tables | | 523K |
| | Registers | | 1,045K |
| DRAM Memory | DDR Format | | - 1x 2GB x 40 DDR4-2400 - 1x 4GB x 72 DDR4-2400 |
| Interfaces | PCI Express® | | Gen3 x16, 2xGen3 x8 |
| | Link Speeds | | 10/25GbE |
| | Network Interface | | 2x SFP28 |
| Networking | Thermal Cooling | | Passive |
| | Typical Power | | 55W |
| | Maximum Power | | 75W |
| | Stateless Offloads | | Yes |
| | Tunneling Offloads | | VXLAN, Geneve, Custom |
| | SR-IOV | | Yes |
| | Advanced Packet Filtering | | Yes |
| Acceleration | | DPDK, Onload® | |
| Time Stamp | Hardware Timestamping | | Yes |
| Manageability | PMCI Protocols | | NC-SI, PLDM Monitoring and Control, PLDM MCTP |
| | PMCI Transports | | MCTP SMBus, MCTP PCIe VDM |
| | Boot Support | | PXE and UEFI |
| Tool Support | Vitis™ Developer Environment | | Yes |

Alveo™ SmartNIC Data Center Accelerator Cards

Notes:

- Logic resources shown without platform usage; refer to card user guides for platform resource usage.

| | Feature | Alveo U30 ¹ |
|------------------------------|---|---|
| Dimensions | Width | Single Slot |
| | Form Factor, Passive Form Factor, Active | Half Height, ½ Length |
| Logic Resources ² | Look-Up Tables | 460K |
| | Registers | 920K |
| | DSP Slices | 3,456 |
| Video support | Video Codec Unit (VCU) | Hardened |
| | Codec | H.264 and H.265 |
| | Video Transcodes per Card | 2 x 4kp60, 8 x 1080p60, 16 x 1080p30, 32 x 720p30 |
| DRAM Memory | DDR Format | 2 x 4GB 72b DDR4 |
| | DDR Total Capacity | 8GB |
| | DDR Max Data Rate | 2400MT/s |
| | DDR Total Bandwidth | 38GB/s |
| Internal SRAM | Total Capacity | 11MB |
| | Total Bandwidth | 10TB/s |
| Interfaces | PCI Express® | Gen3 x8, 2 x Gen3 x4 ³ |
| | Network Interface | – |
| Power and Thermal | Thermal Cooling | Passive |
| | Typical Power | 40W |
| | Maximum Power | 75W |
| Tool Support | Vivado® Design Suite | No |
| | FFmpeg with Xilinx Video Plugins | Yes |
| | Vitis™ Developer Environment | No |
| Solutions | Solutions & Libraries | Video Transcoding Solutions |

Alveo™ Media Data Center Accelerator Cards

Notes

1. The Alveo U30 Media Accelerator Card is designed for use in Xilinx real-time evaluation servers or turn-key high-density video transcoding appliances offered by Xilinx VARs..
2. Logic resources shown are without platform usage. User does not have access to these resources on the Alveo U30 card.
3. Servers need to support bifurcation for users to take advantage of both Zynq® UltraScale+™ devices on the Alveo U30 card.

Alveo Data Center Accelerator Cards Ordering Information



| | | | | | |
|------------------------------|---|---|---|--|--------------------------------------|
| A | U###yy | P | 64G | PQ | G |
| Product Name Alveo | Card Name U200 U250 U280 U50 / U50DD U25 U30MA | Cooling P: Passive A: Active | DDR Memory 00G: 0GB 06G: 6GB 08G: 8GB 32G: 32GB 64G: 64GB | Solution Qualification ESx: Engineering sample, not qualified for volume production PQ: Fully qualified for volume production | RoHS Indicator G: RoHS 6/6 |

U### - 3 Digits for ¾ or Full Length
U## - 2 Digits for Half Length
yy - Feature Option

For valid ordering codes (SKUs), go to the product data sheet(s): <http://www.xilinx.com/alveo>

XMP451 (v1.6)