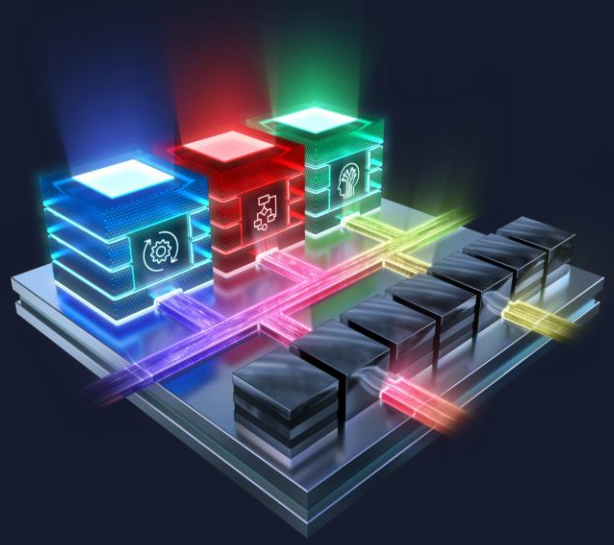
Versal ACAP
AI Core Series
Product Selection Guide



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Industry's First Adaptive Compute Acceleration Platform (ACAP)

Versal™ AI Core Series – Resources

		VC1352	VC1502	VC1702	VC1802	VC1902
Intelligent Engines	AI Engines	128	217	310	300	400
	AI Engine Data Memory Blocks (#)	1024	1736	2480	2400	3200
	AI Engine Data Memory (Mb)	32	54.25	77.5	75	100
	DSP Engines	928	1,312	1,272	1,600	1,968
Adaptable Engines	System Logic Cells (K)	540	797	1,021	1,586	1,968
	LUTs	246,784	364,544	466,688	725,000	899,840
	Distributed RAM (Mb)	8	11	14	22	27
Memory	Total Block RAM (Mb)	18	19	29	28	34
	UltraRAM (Mb)	42	60	113	91	130
	Accelerator RAM (Mb)	32	0	32	0	0
	Total SRAM Capacity (Mb)	92	80	174	120	164
Scalar Engines	Application Processing Unit	Dual-core Arm® Cortex-A72, 48KB/32KB L1 Cache w/ parity & ECC; 1MB L2 Cache w/ ECC				
	Real-time Processing Unit	Dual-core Arm Cortex-R5, 32KB/32KB L1 Cache, and 256KB TCM w/ECC				
	Memory	256KB On-Chip Memory w/ECC				
	Connectivity	Ethernet (x2); UART (x2); CAN-FD (x2); USB 2.0 (x1); SPI (x2); I2C (x2)				
Foundational Platform	NoC Master / NoC Slave Ports	10	14	18	28	28
	DDR Bus Width	128	128	128	256	256
	DDR Memory Controllers	2	2	2	4	4
	CCIX & PCIe® w/DMA (CPM)	–	1 x Gen4x16, CCIX	–	1 x Gen4x16, CCIX	1 x Gen4x16, CCIX
	PCI Express®	1 x Gen4x8	4 x Gen4x8	1 x Gen4x8	4 x Gen4x8	4 x Gen4x8
	Multirate Ethernet MAC	1	4	3	4	4
	SD-FEC	2	0	5	0	0
	Platform Management Controller	Boot, Security, Safety, Monitoring, and High Speed Debug				

Package Footprint	Package Dimensions (mm)	Ball Pitch (mm)	XPIO, HDIO, MIO, GTY	XPIO, HDIO, MIO, GTY	XPIO, HDIO, MIO, GTY	XPIO, HDIO, MIO, GTY	XPIO, HDIO, MIO, GTY
A1024	31x31	0.92	378, 22, 78, 8	378, 22, 78, 8			
E1369	35x35	0.92	378, 44, 78, 8		378, 44, 78, 24		
A1596	37.5x37.5	0.92		378, 44, 78, 32	378, 44, 78, 16		
A1596	40x40	0.92				378, 44, 78, 32	378, 44, 78, 32
D1760	40x40	0.92					648, 44, 78, 24
A2197	45x45	0.92		378, 44, 78, 44		648, 44, 78, 44	648, 44, 78, 44

Versal™ AI Core Series – Figures of Merit

			VC1352	VC1502	VC1702	VC1802	VC1902
Intelligent Engines	AI Engine Peak Perf – INT8	TOPs	43	72	103	100	133
	AI Engine Peak Perf – INT8x16	TOPs	21	36	52	50	67
	AI Engine Peak Perf – INT16	TOPs	11	18	26	25	33
	AI Engine Peak Perf – CINT16	Complex TOPs	3	5	6	6	8
	AI Engine Peak Perf – FP32	TFLOPs	3	5	6	6	8
	AI Engine Peak SRAM Bandwidth	Tb/s	170	289	413	399	532
	DSP Engine Peak Perf – INT8	TOPs	6.4	9.1	8.8	11.0	13.6
	DSP Engine Peak Perf – INT24	TOPs	2.1	3.0	2.9	3.7	4.5
	DSP Engine Peak Perf – CINT18	Complex TOPs	0.9	1.3	1.3	1.6	1.9
	DSP Engine Peak Perf – FP32	TFLOPs	1.5	2.1	2.0	2.6	3.2
Adaptable Engines	Adaptable Engine Peak Perf – INT1	TOPs	258	381	488	758	941
	Adaptable Engine Peak Perf – INT2	TOPs	118	175	224	347	431
	Adaptable Engine Peak Perf – INT4	TOPs	31	45	58	90	112
	Adaptable Engine Peak Perf – INT8	TOPs	8	12	15	23	29
Scalar Engines	Arm® Cortex-A72 Performance	DMIPs	15,980	15,980	15,980	15,980	15,980
	Arm Cortex-R5 Performance	DMIPs	2,505	2,505	2,505	2,505	2,505
Memory	Total Bandwidth - Block RAM	Tb/s	61	67	101	98	118
	Total Bandwidth - Ultra RAM	Tb/s	16	23	43	35	49
	Total Bandwidth - Accelerator RAM	Tb/s	0.4	0	0.4	0	0
	Total SRAM Bandwidth	Tb/s	78	90	144	132	168
I/O	Transceiver Bandwidth	Tb/s	0.26	1.44	0.79	1.44	1.44
	Sensor I/O Bandwidth	Gb/s	0	691	0	0	1,478
Platform Engines	DDR4 Memory Bandwidth	Gb/s	408	408	408	816	816
	LPDDR4 Memory Bandwidth	Gb/s	544	544	544	1,096	1,096
	NoC Cross-sectional Bandwidth	Tb/s	1.2	1.2	1.2	2.5	2.5

AI Core Series: Figures of Merit

All parameters listed are maximum values. Verify all data in this document with the device data sheets or product guides found at: www.xilinx.com.