

Versal™ ACAP Prime Series Product Selection Guide



Industry's First Adaptive Compute Acceleration Platform (ACAP)

			VM1102	VM1302	VM1402	VM1502	VM1802	VM2502	VM2602	VM2902
Adaptable Engines	System Logic Cells (K)		336	605	1,119	797	1,968	1,969	1,575	2,233
	LUTs		153,472	276,480	511,488	364,544	899,840	900,224	719,872	1,020,928
	Distributed RAM (Mb)		5	8	16	11	27	27	22	31
Memory	Total Block RAM (Mb)		5	18	40	19	34	47	49	70
	Total UltraRAM (Mb)		44	50	80	60	130	190	127	181
	Total SRAM Capacity (Mb)		54	76	136	90	191	264	198	282
Intelligent Engines	DSP Engines		472	832	1,696	1,312	1,968	3,984	1,904	2,672
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); USB 2.0 (x1); UART (x2); SPI (x2); I2C (x2); CAN-FD (x2)							
Foundational Platform	NoC Master / NoC Slave Ports		5	9	18	14	28	28	30	42
	DDR Bus Widths		64	128	256	128	256	256	192	192
	DDR Memory Controllers		1	2	4	2	4	4	3	3
	CCIX & PCIe® w/DMA (CPM)		-	1 x Gen4x16, CCIX	1 x Gen4x16, CCIX	1 x Gen4x16, CCIX	1 x Gen4x16, CCIX	1 x Gen4x16, CCIX	-	-
	PCI Express®		1 x Gen4x8	2 x Gen4x8	2 x Gen4x8	4 x Gen4x8	4 x Gen4x8	1 x Gen4x8	2 x Gen4x8	2 x Gen4x8
	100G Multirate Ethernet MAC		1	2	2	4	4	2	6	8
Package Footprint	Package Dimensions (mm)	Ball Pitch (mm)	XPIO, HDIO, MIO GTY, GTM	XPIO, HDIO, MIO GTY, GTM	XPIO, HDIO, MIO GTY, GTM	XPIO, HDIO, MIO GTY, GTM	XPIO, HDIO, MIO GTY, GTM	XPIO, HDIO, MIO GTY, GTM	XPIO, HDIO, MIO GTY, GTM	XPIO, HDIO, MIO GTY, GTM
B625	21x21	0.8	216, 22, 78 4, 0							
B1024	31x31	0.92	216, 22, 78 12, 0	216, 22, 78 16, 0	324, 22, 78 16, 0					
B1369	35x35	0.92		216, 22, 78 24, 0	324, 22, 78 24, 0	378, 22, 78 16, 0				
F1369	35x35	0.92		324, 22, 78 8, 0	648, 22, 78 8, 0					
A1760	40x40	0.92		432, 22, 78 24, 0	648, 22, 78 24, 0				486, 22, 78 8, 24	
C1760	40x40	0.92				378, 44, 78 44, 0	378, 44, 78 44, 0		378, 44, 78 8, 40	378, 44, 78 8, 40
D1760	40x40	0.92					648, 0, 78 24, 0			
A2197	45x45	0.92					648, 44, 78 44, 0	648, 22, 78 16, 16		

Notes:

1. GTY transceivers operate at data rates up to 32.75Gb/s.
2. GTM transceivers operate at data rates up to 58Gb/s.

Versal™ Prime Series – Figures of Merit

			VM1102	VM1302	VM1402	VM1502	VM1802	VM2502	VM2602	VM2902
Intelligent Engines	DSP Engine Peak Perf – INT8	TOPs	3.3	5.7	11.7	9.1	13.6	27.5	13.1	18.4
	DSP Engine Peak Perf – INT24	TOPs	1.1	1.9	3.9	3.0	4.5	9.2	4.4	6.1
	DSP Engine Peak Perf – CINT18	Complex TOPs	0.5	0.8	1.7	1.3	1.9	3.9	1.9	2.6
	DSP Engine Peak Perf – FP32	TFLOPs	0.8	1.3	2.7	2.1	3.2	6.4	3.1	4.3
Adaptable Engines	Adaptable Engine Peak Perf – INT1	TOPs	160	289	535	381	941	941	753	1,067
	Adaptable Engine Peak Perf – INT2	TOPs	74	132	245	175	431	431	345	489
	Adaptable Engine Peak Perf – INT4	TOPs	19	34	64	45	112	112	89	127
	Adaptable Engine Peak Perf – INT8	TOPs	5	9	16	12	29	29	23	33
Scalar Engines	Arm Cortex-A72 Performance	DMIPs	15,980	15,980	15,980	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	2,505	2,505	2,505
Memory	Total Bandwidth – Block RAM	Tb/s	22	72	166	79	139	193	202	285
	Total Bandwidth – UltraRAM	Tb/s	16	19	30	23	49	72	48	69
	Total SRAM Bandwidth	Tb/s	39	91	196	102	188	265	250	354
I/O	Transceiver Bandwidth	Tb/s	0.39	0.79	0.79	1.44	1.44	2.28	3.97	5.83
	Sensor I/O Bandwidth	Gb/s	269	0	1421	0	0	0	0	0
Platform Engines	DDR4 Memory Bandwidth	GB/s	25.6	51.2	102.4	51.2	102.4	102.4	76.8	76.8
	LPDDR4 Memory Bandwidth	GB/s	34.1	68.3	136.5	68.3	136.5	136.5	102.4	102.4
	NoC Cross-sectional Bandwidth	Tb/s	0.6	0.6	1.2	1.2	2.5	2.5	1.8	1.8

Versal Prime Series: Figures of Merit

Versal™ ACAP Ordering Information



Device Name				Device Attributes				Footprint			
XC	V	M	1802	-1	M	S	E	V	F	V	XXX
Xilinx XC: Commercial XA: Automotive XQ: Defense	Architecture Versal	Series Name C: AI Core M: Prime	Device Number Digits 1-3: Value Identifier Digit 4: # of Primary Cores	Speed Grade -1: Slowest -2: Mid -3: Highest	Voltage L: Low (0.7V) M: Mid (0.80V) H: High (0.88V) D: Low and Mid G: Mid and High	Static Screen S: Standard L: Low Static	Temp Grade E: 0 to 110°C ⁽¹⁾ I: -40 to 110°C ⁽¹⁾	Ball Pitch V: 0.92mm S: 0.8mm L: 1.0mm	Lid S: Stiffener Ring F: Forged (Lidded) B: Bare Die H: Lidded Overhang I: Stiffener Ring Overhang	RoHS6 Code G: Eutectic Bump V: Pb-free Bump	Package Pin Count

Note:

1. 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).