

Versal™ ACAP Premium Series Product Selection Guide



Industry's First Adaptive Compute Acceleration Platform (ACAP)

Versal™ Premium Series – Resources

		VP1102	VP1202	VP1402	VP1502	VP1552	VP1702	VP1802
Adaptable Engines	System Logic Cells (K)	1,575	1,969	2,233	3,763	3,837	5,558	7,352
	LUTs	719,872	900,224	1,020,928	1,720,448	1,753,984	2,540,672	3,360,896
	NoC Master / NoC Slave Ports	30	28	42	52	52	76	100
	Distributed RAM (Mb)	22	27	31	53	54	78	103
Memory	Total Block RAM (Mb)	49	47	70	89	89	132	174
	UltraRAM (Mb)	127	190	181	366	366	541	717
	Total SRAM Capacity (Mb)	198	264	282	508	509	751	994
	DDR Memory Controllers	3	4	3	4	4	4	4
	DDR Bus Width	192	256	192	256	256	256	256
Intelligent Engines	DSP Engines	1,904	3,984	2,672	7,440	7,392	10,896	14,352
Scalar Engines	APU	Dual-core Arm® Cortex®-A72, 48KB/32KB L1 Cache w/ parity & ECC; 1MB L2 Cache w/ ECC						
	RPU	Dual-core Arm Cortex-R5F, 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)						
Serial Transceivers	GTYP ⁽¹⁾ 32G	8	28 ⁽²⁾	8	28 ⁽²⁾	68 ⁽²⁾	28 ⁽²⁾	28 ⁽²⁾
	GTM ⁽³⁾ 58G (112G)	64 (32)	20 (10)	96 (48)	60 (30)	20 (10)	100 (50)	140 (70)
Integrated Protocol IP	CCIX & PCIe® w/DMA (CPM)	-	2 x Gen5x8, CCIX	-	2 x Gen5x8, CCIX	2 x Gen5x8, CCIX	2 x Gen5x8, CCIX	2 x Gen5x8, CCIX
	PCI Express® with CXL ⁽⁴⁾	2 x Gen5x4	2 x Gen5x4	2 x Gen5x4	2 x Gen5x4	8 x Gen5x4	2 x Gen5x4	2 x Gen5x4
	100G Multirate Ethernet MAC	6	2	6	4	4	6	8
	600G Ethernet MAC	4	1	8	3	1	5	7
	600G Interlaken	2	0	2	1	0	2	3
	400G High-Speed Crypto Engine	3	1	5	2	2	3	4
Package	Package Dimensions (mm)	Ball Pitch (mm)	XPIO, HDIO, MIO, GTYP, GTM (112G)	XPIO, HDIO, MIO, GTYP, GTM (112G)	XPIO, HDIO, MIO, GTYP, GTM (112G)	XPIO, HDIO, MIO, GTYP, GTM (112G)	XPIO, HDIO, MIO, GTYP, GTM (112G)	XPIO, HDIO, MIO, GTYP, GTM (112G)
VFVA1760 ⁽⁵⁾	40x40	0.92	486, 22, 78 8, 24 (12)					
VFVC1760 ⁽⁵⁾	40x40	0.92	378, 44, 78 8, 40 (16)		378, 44, 78 8, 40 (16)			
VSVA2197 ⁽⁵⁾	45x45	0.92		648, 0, 78 16, 16 (8)				
VSVA2785	50x50	0.92	486, 44, 78 8, 64 (32)	702, 0, 78 28, 20 (10)	486, 44, 78 8, 80 (40)	702, 0, 78 28, 56 (28)	702, 0, 78 68, 16 (8)	
VSVA3340	55x55	0.92			486, 44, 78 8, 96 (48)	702, 0, 78 28, 60 (30)	702, 0, 78 68, 20 (10)	702, 0, 78 28, 88 (44)
LSVC4072	65x65	1.0						648, 0, 78 28, 100 (50)
								648, 0, 78 28, 140 (70)

Notes:

1. GTYP transceivers operate at data rates up to 32.75Gb/s
2. 16 GTYP transceivers are dedicated to the CPM for PCI Express use.
3. GTM transceivers can operate at data rates up to 112Gb/s by combining two transceivers together

4. CXL implemented via a combination of hard and soft IP
5. Some packages are footprint compatible with Versal Prime series devices

Versal™ Premium Series – Figures of Merit

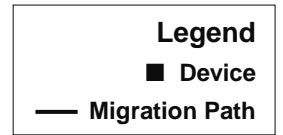
			VP1102	VP1202	VP1402	VP1502	VP1552	VP1702	VP1802
Adaptable Engines	Adaptable Engine Peak Perf – INT1	TOPs	753	941	1067	1799	1834	2656	3514
	Adaptable Engine Peak Perf – INT2	TOPs	345	431	489	824	840	1217	1610
	Adaptable Engine Peak Perf – INT4	TOPs	89	112	127	214	218	316	418
	Adaptable Engine Peak Perf – INT8	TOPs	23	29	33	55	56	81	107
	NoC Cross-sectional Bandwidth	Tb/s	1.7	2.2	1.7	2.2	2.2	2.2	2.2
Memory	Total Bandwidth - Block RAM	Tb/s	202	193	285	366	366	539	712
	Total Bandwidth - Ultra RAM	Tb/s	48	72	69	138	138	205	271
	Total SRAM Bandwidth	Tb/s	250	265	354	504	504	743	982
	DDR4 Memory Bandwidth	Gb/s	76.8	102.4	76.8	102.4	102.4	102.4	102.4
	LPDDR4 Memory Bandwidth	Gb/s	102.4	136.5	102.4	136.5	136.5	136.5	136.5
Intelligent Engines	DSP Engine Peak Perf – INT8	TOPs	13.1	27.5	18.4	51.3	51.0	75.2	99.0
	DSP Engine Peak Perf – INT24	TOPs	4.4	9.2	6.1	17.1	17.0	25.1	33.0
	DSP Engine Peak Perf – CINT18	Complex TOPs	1.9	3.9	2.6	7.3	7.3	10.7	14.1
	DSP Engine Peak Perf – FP32	TFLOPs	3.1	6.4	4.3	12.0	11.9	17.5	23.1
Scalar Engines	Arm® Cortex-A72 Performance	DMIPs	15980	15980	15980	15980	15980	15980	15980
	Arm Cortex-R5F Performance	DMIPs	2505	2505	2505	2505	2505	2505	2505
I/O	Transceiver Bandwidth	Tb/s	3.97	2.08	5.83	4.40	3.39	6.72	9.04
	Sensor I/O Bandwidth	Gb/s	979	0	979	0	0	0	0
Connectivity Throughput	PCIe Gen5 Throughput	GT/s	256	768	256	768	1536	768	768
	Interlaken Throughput	Gb/s	1200	0	1800	600	0	1200	1800
	Ethernet Throughput	Gb/s	3000	800	4400	2200	1000	3600	5000
	Cryptographic (AES-256) Throughput	Gb/s	1200	400	1600	800	800	1200	1600
Connectivity Ports	10G Ethernet Ports	#	24	8	32	16	16	24	32
	25G Ethernet Ports	#	24	8	32	16	16	24	32
	40G Ethernet Ports	#	6	2	8	4	4	6	8
	50G Ethernet Ports	#	12	4	16	8	8	12	16
	100G Ethernet Ports	#	30	8	44	22	10	36	50
	200G Ethernet Ports	#	12	3	18	9	3	15	21
	400G Ethernet Ports	#	4	1	6	3	1	5	7

Versal Premium Series: Figures of Merit

Versal™ ACAP Migration Table

Package Name	Footprint	Versal AI Core Series					Versal Prime Series							Versal Premium Series							
		VC1352	VC1502	VC1702	VC1802	VC1902	VM1102	VM1302	VM1402	VM1502	VM1802	VM2502	VM2602	VM2902	VP1102	VP1202	VP1402	VP1502	VP1552	VP1702	VP1802
SFVB625	B625						■														
VBVA1024	A1024	■	■																		
VFVB1024	B1024						■	■	■												
VFVB1369	B1369							■	■	■											
VSVE1369	E1369	■		■																	
VSVF1369	F1369							■	■												
VSVG1369	G1369		■																		
VSVA1596*	A1596 ⁽¹⁾	■	■																		
VIVA1596*	A1596 ⁽¹⁾				■	■															
VFVA1760	A1760							■	■				■		■						
VFVC1760	C1760									■	■		■	■		■					
VSVD1760	D1760				■	■		■	■		■										
VSVA2197	A2197	■		■	■											■					
VSVA2785	A2785														■	■	■	■	■		
VSVA3340	A3340															■	■	■	■	■	
LSVC4072	C4072																			■	■

Note:
 1. VSVA1596 package dimensions are 37.5x37.5mm, VIVA1596 package dimensions are 40x40mm with 1.25mm overhang



Versal™ ACAP Ordering Information



Device Name

Device Attributes

Package Definition

XC	V	P	1802	-1	M	S	E	L	S	V	C4072
Xilinx XC: Commercial XA: Automotive XQ: Defense	Architecture Versal	Series Name C: AI Core M: Prime P: Premium	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 Footprint

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).