Topaz FPGA Selector Guide

Topaz FPGAs combine an efficient 16 nm architecture with the features and protocols commonly used today (such as PCIe Gen3, MIPI, LPDDR4, and LVDS). Carefully designed to pack more logic into the XLR cells, the Topaz architecture gives you more room to innovate and more logic to add new features. Topaz FPGAs are available in a wide range of BGA packages that are easy to integrate into your system. Additionally, you can easily migrate from Topaz to Titanium FPGAs when you need to upgrade your design's performance or need more logic.

Topasz Family Features



50K to 325K Logic Elements | 10 Kb Embedded RAM Blocks | DSP Blocks | PLLs | High-Voltage I/O (HVIO) | High-Speed I/O (HSIO) | Hardened RISC-V Block | MIPI D-PHY 2 Gbps | LPDDR4 Controller & PHY | Transceivers 12.5G

Topaz Ordering Codes

You can use HSIO pairs for a various differential standards such as LVDS (1.3 Gbps), differential HSTL/SSTL.

FPGA	LEs	RAM (Mbits)	RAM Blocks (10 Kb)	DSP Blocks	Package	Pins	HVIO	HSIO	PLLs	2G MIPI D-PHY	Hardened RISC-V Block	LPDDR4	Transceivers [1]	PCIe®	Temperature	Speed Grade	Ordering Code
Tz50	52,160	2.4	235	140	FBGA	100	–	61	3	–	–	–	–	–	C	2, 3	Tz50F100C2/3
															I		Tz50F100I2/3
						225	23	140	4	–	–	–	–	–	C	2, 3	Tz50F225C2/3
															I		Tz50F225I2/3
						256	27	142	4	–	–	–	–	–	C	2, 3	Tz50F256C2/3
															I		Tz50F256I2/3
Tz75	75,520	5.34	522	264	FBGA	676	84	139	9	2 TX 2 RX	Quad Core	x32	up to 2	1x Gen3	C	2, 3	Tz75N676C2/3
															I		Tz75N676I2/3
Tz100	101,440	6.32	618	312	FBGA	676	84	139	9	2 TX 2 RX	Quad Core	x32	up to 2	1x Gen3	C	2, 3	Tz100N676C2/3
															I		Tz100N676I2/3
Tz110	120,584	6.41	626	320	FBGA	361	20	110	8	2 TX 2 RX	–	x16	–	–	C	2, 3	Tz110J361C2/3
															I		Tz110J361I2/3
						400	74	200	8	–	–	–	–	–	C	2, 3	Tz110G400C2/3
															I		Tz110G400I2/3
						484	27	116	8	4 TX 4 RX	–	x32	–	–	C	2, 3	Tz110J484C2/3
															I		Tz110J484I2/3

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FPGA	LEs	RAM (Mbits)	RAM Blocks (10 Kb)	DSP Blocks	Package	Pins	HVIO	HSIO	PLLs	2G MIPI D-PHY	Hardened RISC-V Block	LPDDR4	Transceivers [1]	PCIe®	Temperature	Speed Grade	Ordering Code
Tz170	172,008	11.14	1,088	540	FBGA	361	20	110	8	2TX 2RX	–	x16	–	–	C	2, 3	Tz170J361C2/3
															I		Tz170J361I2/3
						400	74	200	8	–	–	–	–	–	C	2, 3	Tz170G400C2/3
															I		Tz170G400I2/3
						484	27	116	8	4 TX 4 RX	–	x32	–	–	C	2, 3	Tz170J484C2/3
															I		Tz170J484I2/3
Tz200	215,360	15.77	1,541	840	FBGA	484	20	85	9	1 TX 1 RX	Quad Core	x32	up to 2	1x Gen3	C	2, 3	Tz200N484C2/3
															I		Tz200N484I2/3
						529	51	176	12	–	Quad Core	x32	–	–	C	2, 3	Tz200C529C2/3
															I		Tz200C529I2/3
Tz325	326,080	19.22	1,877	1,008	FBGA	484	20	85	9	1 TX 1 RX	Quad Core	x32	up to 2	1x Gen3	C	2, 3	Tz325N484C2/3
															I		Tz325N484I2/3
						529	51	176	12	–	Quad Core	x32	–	–	C	2, 3	Tz325C529C2/3
															I		Tz325C529I2/3

[1] Each transceiver bank has 4 lanes. All banks support SGMII, 10GBase-KR, and PMA Direct. 1 bank supports PCIe.

Package Dimensions

Package	Pitch (mm)	Dimensions (mm)
100-ball FBGA	0.5	5.5x5.5
225-ball FBGA	0.65	10x10
256-ball FBGA	0.8	13x13
361-ball FBGA	0.65	13x13

Package	Pitch (mm)	Dimensions (mm)
400-ball FBGA	0.8	16x16
484-ball FBGA	0.8	18x18
529-ball FBGA	0.8	19x19
676-ball FBGA	0.8	22x22

Example Ordering Code

Topaz FPGA — **Tz50 F 225 C 2**

Package Code
C, F, G, J, N: FBGA Package

Number of Pins

Speed Grade
2, 3
Higher numbers are faster

Operating Temperature
C: Commercial (T_j = 0° C to 85° C)
I: Industrial (T_j = -40° C to 100° C)

Product Longevity

At Efinix we are committed to supplying our customers with a stable supply of supported products throughout their product life cycle. We are committed to supporting our Topaz family of FPGAs in customer designs until at least 2037. Contact your local sales representative for more information on product life cycles.

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