

# XILINX AEROSPACE & DEFENSE SOLUTIONS



		Space-Grade Devices						
		Virtex®-5QV FPGA	Virtex-4QV FPGAs				Virtex XQR FPGAs	
		Part Number	XQR5VFX130	XQR4VLX200	XQR4VSX55	XQR4VFX60	XQR4VFX140	XQVR300
Logic Resources	Core Voltage	1.0V	1.2V	1.2V	1.2V	1.2V	2.5V	2.5V
	Slices <sup>(1,2)</sup>	20,480	89,088	24,576	25,280	63,168	3,072	6,912
	Logic Cells	131,072	200,448	55,296	56,880	142,128	6,912	15,552
	CLB Flip-Flops	81920	178,176	49,152	50,560	126,336	6,144	13,824
Memory Resources	Maximum Distributed RAM (Kb)	1580	1,392	384	395	987	1,711	3,523
	Block RAM/FIFO w/ECC (36 Kb each)	298	—	—	—	—	—	—
	Block RAM/FIFO (18 Kb each)	596	336	320	232	552	—	—
	Block RAM (4 Kb each)	—	—	—	—	—	16	24
	Total Block RAM (Kb)	10,728	6,048	5,760	4,176	9,936	64	96
Clock Resources	Digital Clock Manager (DCM)	12	12	8	12	20	—	—
	Phase-Locked Loop (PLL)	6	—	—	—	—	—	—
	Delay-Locked Loop (DLL)	—	—	—	—	—	4	4
I/O Resources	Maximum Single-Ended I/Os	836	960	640	576	896	316	316
	Maximum Differential I/O Pairs	414	480	320	288	448	—	—
	Digitally Controlled Impedance	Yes	Yes	Yes	Yes	Yes	—	—
Embedded IP Resources	Enhanced DSP Slices (DSP48E)	320	—	—	—	—	—	—
	DSP Slices	—	96	512	128	192	—	—
	18 x 18 Multipliers	—	—	—	—	—	—	—
	10/100/100 Ethernet MAC Blocks	6	—	—	4	4	—	—
	PowerPC® Processor Blocks	—	—	—	2	2	—	—
Miscellaneous	Multi-Gigabit Serial Transceivers (MGT)	18	—	—	—	—	—	—
	Speed Grades	-1	-10	-10	-10	-10	-4	-4
	Configuration Memory (Mb)	49.2	51.4	22.7	21.0	47.9	1.7	3.5
	Manufacturing Grades	V, B	V	V	V	V	M, V, B	M, V, B
	Total Ionizing Dose (krad(Si))	1000	300	300	300	300	100	100
	SEL Immunity (MeV·cm <sup>2</sup> /mg)	>125	>125	>125	>125	>125	>125	>125
Package <sup>(3)</sup>	Area	Available User I/Os						
CFA Packages (CN): Flip-chip, ceramic column grid array (1.0 mm column spacing)								
CN1144 <sup>(4)</sup>	35 x 35 mm			640	576			
CN1140 <sup>(5)</sup>	35 x 35 mm							
CN1509 <sup>(6)</sup>	40 x 40 mm		960			768		
CN1752 <sup>(7)</sup>	45 x 45 mm	836						
CQFP Packages (CB): Ceramic, brazed, quad flat pack (0.025 inch lead spacing)								
CB228	1.55 x 1.55 in						162	162
								XMP077 (v2.3)

- Notes:
1. A single Virtex-5 (QV) FPGA CLB comprises two slices, each containing four 6-input LUTs and four flip-flops (twice the number found in a Virtex-4 FPGA slice), for a total of eight 6-input LUTs and eight flip-flops per CLB.
  2. (Virtex-4QV, Virtex-II XQR & Virtex XQR FPGAs) Each slice comprises two 4-input logic function generators (LUTs), two storage elements, wide-function multiplexers, and carry logic.
  3. For information on DLA-LM SMD availability, contact Xilinx.
  4. The CN1144 and FF1152 packages are footprint/pin compatible.
  5. The CN1140 and FF1148 packages are footprint/pin compatible.
  6. For the XQR4VLX200, the CN1509 and FF1513 packages are footprint/pin compatible. For the XQR4VFX140, the CN1509 and the FF1517 are footprint/pin compatible.
  7. The CN1752 and FF1738 are footprint/pin compatible.
  8. Ceramic daisy chain packages are available for CN1144, CN1140, CN1509, and CN1752 packages.

Manufacturing Grades		
Grade	Description	Temperature
V	Xilinx V-Grade Flow <sup>(1)</sup> Military Ceramic	T <sub>C</sub> = -55°C to +125°C
H	Flip-Chip Radiation Tolerant Ceramic	T <sub>J</sub> = -55°C to +125°C
B	Xilinx B-Grade Flow Military Ceramic	T <sub>C</sub> = -55°C to +125°C
N	Military Plastic	T <sub>J</sub> = -55°C to +125°C
M	Military Ceramic or Plastic	T <sub>J</sub> = -55°C to +125°C (Plastic) T <sub>C</sub> = -55°C to +125°C (Ceramic)
I	Industrial Plastic	T <sub>J</sub> = -40°C to +100°C

Notes: 1. Per ADQ0007 for Virtex-5QV and Virtex-4QV devices.