Xilinx Automotive (XA) Programmable Logic Solutions

Combining Quality and Reliability with Design Flexibility

Designing electronics systems for automobiles has always presented unique challenges in both functionality and reliability. With automotive electronics driving up to 90% of functional innovation in new vehicles, it has become even more important to choose the right devices to meet demanding temperature, quality, and technological requirements.

The Xilinx Automotive (XA) family of FPGAs and CPLDs, delivers both the design flexibility and time-to-market advantages associated with programmable logic devices, while also meeting extended-temperature requirements and quality standards.

XA devices are available in Q-grade (-40ºC to +125ºC) and I-grade (-40ºC to +85ºC), are qualified to the industry-recognized AEC-Q100 standard, and have full production part approval process (PPAP) documentation support. XA solutions include CoolRunner-II™ CPLDS, the lowest-power CPLD devices available, and the Spartan-3E™ FPGAs, the lowest-cost FPGA devices.

Leading Automotive Programmable Logic Solutions

The Xilinx Automotive (XA) product family is the industry's leading programmable logic family developed specifically for automotive applications. This family is ideal for a wide range of advanced automotive electronics modules and systems ranging from the latest driver assistance and infotainment systems to reconfigurable instrument clusters and ECU gateways. XA FPGAs allow you to optimize these applications through the use of superior flexibility, reconfigurability, and advanced on-chip resources such as multipliers for high-speed DSP.

XA devices feature advanced capabilities including:

- AEC-Q100 device qualification and full PPAP support available in both extended temperature Q-grade and I-grade
- Extensive IP core interface options such as CAN, LIN, and MOST 1394, flexible display controllers with 2D acceleration, plus soft IP microprocessors, such as the 32-bit MicroBlaze™, that never become obsolete
- Powerful and easy-to-use design and development software
  - ISE design tools that shorten design and verification time
  - DSP development tools from The MathWorks and Cadence
- A wide range of densities, from 32 macrocells (750 system gates) to 1.6 Million system gates

In addition, Xilinx and all of our production partners are qualified to certified ISO -TS16949.

XILINX®

Xilinx XA Solutions Lower the Cost of System Development

Whether you use CPLDs to integrate standard discrete logic into one device or use the advanced features of Spartan-3 FPGAs to produce a system-on-a-chip design, XA devices reduce the cost of development, test, qualification, and production. Our advanced design tools also minimize time spent in design and development.

The reconfigurability of PLDs gives you the freedom to use the exact same device in design/development as that in production. Integrating many devices or functions into one device also lowers qualification expenses, reduces stocking levels, and decreases purchasing costs. Plus, the same generic device can be used across many projects and simply reprogrammed to perform different tasks with the added benefit of off-the-shelf availability and no MOQs.

Extended Temperature Support

	Temperature/Grade °C	
Product Group	**Automotive I**	**Automotive Q**
XA FPGA	T_J = -40 to +100	T_J = -40 to +125
XA CPLD	T_A = -40 to +85	T_A = -40 to +125

T_j = Junction Temperature
T_a = Ambient Temperature

Take the Next Step

For more information about all XA devices, visit **www.xilinx.com/automotive**

XA Device Family

Part Number	System Gates	Number of Slices	Logic Cells	Macrocells	# of Block RAM (bits)	Dedicated Multipliers	# of DLLs (S-IIE) # of DCMs (S3)	Maximum User I/O (for largest package)	Maximum Differential I/O Pairs (for largest package)	Speed	Available Temp Grades	Available Packages	Pb-Free/ RoHS
Spartan-IIE FPGA (Input Voltage: 1.8V/2.5V/3.3V) (Output Voltage: 1.5V/1.8V/2.5V/3.3V)													
XA2S50E	50K	768	1,728	N/A	32K	N/A	4	102	28	-6	I,Q	TQ144	
XA2S100E	100K	1,200	2,700	N/A	40K	N/A	4	102	28	-6	I,Q	TQ144	
XA2S150E	150K	1,728	3,888	N/A	48K	N/A	4	182	83	-6	I,Q	FT256	
XA2S200E	200K	2,352	5,292	N/A	56K	N/A	4	182	83	-6	I,Q	FT256	
XA2S300E	300K	3,072	6,912	N/A	64K	N/A	4	182	83	-6	I,Q	FT256	
Spartan-3 - (Input voltage: 1.2V, 2.5V, I/O Voltage; Output voltage 1.2V- 3.3V)													
XA3S50	50K	768	1,728	N/A	72K	4	2	124	56	-4	I,Q	VQG100, PQG208	X
XA3S200	200K	1,920	4,320	N/A	216K	12	4	173	76	-4	I,Q	VQG100, TQG144, PQG208, FTG256	X
XA3S400	400K	3,584	8,064	N/A	288K	16	4	264	116	-4	I,Q	PQG208, FTG256, FGG456	X
XA3S1000	1000K	7,680	17,280	N/A	432K	24	4	333	149	-4	I,Q	FTG256, FGG456	X
XA3S1500	1500K	13,312	29,952	N/A	576K	32	4	487	221	-4	I	FGG456, FGG676	x
Spartan-3E - (Input voltage: 1.2V, 2.5V, I/O Voltage; Output voltage 1.2V- 3.3V)													
XA3S100E	100K	960	2,160	N/A	72K	4	2	66	30	-4	I,Q	VQG100, CPG132	X
XA3S250E	250K	2,448	5,508	N/A	216K	12	4	172	68	-4	I,Q	VQG100, CPG132, FTG256	X
XA3S500E	500K	4,656	10,476	N/A	360K	20	4	190	77	-4	I,Q	CPG132, FTG256	X
XA3S1200E	1200K	8,672	19,512	N/A	504K	28	8	304	124	-4	I,Q	FTG256, FGG400	X
XA3S1600E	1600K	14,752	33,192	N/A	648K	36	8	304	124	-4	I	FGG400, FGG484	X
CoolRunner-II CPLD (Input Voltage: 1.5V/1.8V/2.5V/3.3V) (Output Voltage: 1.5V/1.8V/2.5V/3.3V)													
XA2C32A	750	N/A	N/A	32	N/A	N/A	N/A	33	N/A	-6, -7	I,Q	VQG44	X
XA2C64A	1500	N/A	N/A	64	N/A	N/A	N/A	64	N/A	-7, -8	I,Q	VQG44, VQG100	X
XA2C128	3000	N/A	N/A	128	N/A	N/A	N/A	100	N/A	-7, -8	I,Q	VQG100, CPG132	X
XA2C256	6000	N/A	N/A	256	N/A	N/A	N/A	118	N/A	-7, -8	I,Q	VQG100, TQG144	X
XA2C384	12000	N/A	N/A	384	N/A	N/A	N/A	118	N/A	-10, -11	I,Q	TQG144	X
9500XL CPLD (Input Voltage: 2.5V/3.3V/5V) (Output Voltage: 2.5V/3.3V)													
XA9536XL	800	N/A	N/A	36	N/A	N/A	N/A	34	N/A	-15	I,Q	VQG44	X
XA9572XL	1600	N/A	N/A	72	N/A	N/A	N/A	72	N/A	-15	I,Q	VQG44, VQG64, TQG100	X
XA95144XL	3200	N/A	N/A	144	N/A	N/A	N/A	117	N/A	-15	I	CSG144	X

Part Number	Number of Slices	Logic Cells	Macrocells	# of Block RAM (bits)	XtremeDSP Slices	# of PowerPC Processor Blocks	# of 10/100/1000 Ethernet MAC Blocks	# of DCMs	Maximum User I/O (for largest package)	Maximum Differential I/O Pairs (for largest package)	Speed	Available Temp Grades	Available Packages	Pb-Free/ RoHS
Virtex-4 - (Input voltage: 1.2V, 2.5V, I/O Voltage; Output voltage 1.2V-3.3V)														
XA4VFX12	5,472	12,312	N/A	648K	32	1	2	4	320	160	-10	I	SFG363	X

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