



## High-Reliability and QML Military Products

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Xilinx is the world's leading supplier of High-Reliability Programmable Logic Devices (Hi-REL PLDs) to the aerospace, military, defense electronics, and related markets. These devices are being used in a wide variety of programs, including applications such as electronic warfare, missile guidance and targeting, RADAR/SONAR, communications, signal processing, aerospace and avionics.

### QML Certification Part of Overall Quality Platform

Being certified to MIL-PRF-38535 QML (Qualified Manufacturer List), complemented by ISO-9000 Certification, results in an overall product quality platform that truly makes Xilinx a world-class supplier of programmable logic. Designers can confidently design with Xilinx for Hi-Rel systems knowing there is unsurpassed quality and reliability, and long-term commitment to the Hi-Rel market.

### Unmatched Hi-Rel Product Offering

Xilinx offers a wide variety of devices, delivering the fastest and biggest Hi-Rel devices available. Products up to 62,000 gates are available today, with even higher densities to come. Xilinx offers multiple product families to allow you to select the right device to meet your design requirements.

This broad range of devices is available in a wide variety of speed and package options. Both military temperature and full MIL-PRF-38535 QML/SMD versions are available as standard, off-the-shelf products, in through-hole and surface mount packages.

**Table 1: High Density and High Performance Products**

Family	Devices	Features
XC4000/E/XL	XC4003A XC4005/E XC4010/E XC4013/E XC4025E	Highest Density/Most Features Family <ul style="list-style-type: none"><li>• 3,000-25,000+ gates</li><li>• Up to 256 user-definable I/Os</li><li>• Extensive system features include on-chip user RAM, built-in 1149.1 test support and fast carry logic</li></ul>
	XC4036XL XC4062XL	Most Advanced Family <ul style="list-style-type: none"><li>• 62,000 + gates, 3.3 V, 5V-compatible I/O</li></ul>
XC3100A	XC3142A XC3190A XC3195A	Highest Performance Family <ul style="list-style-type: none"><li>• 2,500-7,500 gates</li><li>• Up to 144 user-definable I/Os</li></ul>

### Committed to the Hi-Rel Market

Xilinx understands that you need to be able to count on your Hi-Rel supplier. Xilinx is committed to our customers and the Hi-Rel market for the long-term, and we are continually expanding our Hi-Rel support and product portfolio. The unique capabilities of the Xilinx FPGA solution provide increased design flexibility, field-upgradability and system feature integration, while eliminating the NREs, lead-time and inventory problems of custom logic and gate arrays. Now more than ever, Xilinx is your Hi-Rel logic solution.

### Die Products

Xilinx also provides select products in die form. Working with our partner, Chip Supply of Orlando, Florida, many Xilinx products are available in die form, providing all the advantages of Xilinx FPGAs to designers of hybrids and multi-chip modules. For more information about Xilinx die products, contact the nearest Xilinx Sales office or Sales Representative, or Chip Supply direct at (407)298-7100.

### Xilinx Hi-Rel Products

Table 1 summarizes Xilinx high density and high performance product offerings. The following pages contain a complete listing of current Xilinx QML/SMD (Standard Microcircuit Drawings) devices and "B" grade equivalents. Architectural descriptions for these FPGA products can be found in Chapter 4. For additional information, contact the nearest Xilinx Sales Office or Sales Representative.

Table 2: Xilinx SMD (Standard Microcircuit Drawing)

## XC1700 Products

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-9471701MPA	XC1765DDD8B		DD8	TOP
5962-9561701MPA	XC17256DDD8B		DD8	TOP

## XC2000 Products\*

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-8863801MXC	XC2018-33PG84B	-33	PG84	TOP
5962-8863802MXC	XC2018-50PG84B	-50	PG84	TOP
5962-8863803MXC	XC2018-70PG84B	-70	PG84	TOP
5962-8863804MXC	XC2018-100PG84B	-100	PG84	TOP

\* Do Not Use for New Designs. (Products being obsoleted).

## XC3000 Products

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-8994801MXC	XC3020-50PG84B	-50	PG84	TOP
5962-8994802MXC	XC3020-70PG84B	-70	PG84	TOP
5962-8994803MXC	XC3020-100PG84B	-100	PG84	TOP
5962-8994801MNC	XC3020-50CB100B	-50	CB100	BASE
5962-8994802MNC	XC3020-70CB100B	-70	CB100	BASE
5962-8994803MNC	XC3020-100CB100B	-100	CB100	BASE
5962-8994801MMC	XC3020-50CB100B	-50	CB100	LID
5962-8994802MMC	XC3020-70CB100B	-70	CB100	LID
5962-8994803MMC	XC3020-100CB100B	-100	CB100	LID
5962-8994801MYA*	XC3020-50CQ100B	-50	CQ100	BASE
5962-8994802MYA*	XC3020-70CQ100B	-70	CQ100	BASE
5962-8994803MYA*	XC3020-100CQ100B	-100	CQ100	BASE
5962-8994801MTA*	XC3020-50CQ100B	-50	CQ100	LID
5962-8994802MTA*	XC3020-70CQ100B	-70	CQ100	LID
5962-8994803MTA*	XC3020-100CQ100B	-100	CQ100	LID

\* Do Not Use for New Designs (package is obsolete). Use "CB" Package Instead.

**XC3000 Products (continued)**

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-8971301MXC	XC3042-50PG84B	-50	PG84	TOP
5962-8971302MXC	XC3042-70PG84B	-70	PG84	TOP
5962-8971303MXC	XC3042-100PG84B	-100	PG84	TOP
5962-8971301MZC	XC3042-50PG132B	-50	PG132	TOP
5962-8971302MZC	XC3042-70PG132B	-70	PG132	TOP
5962-8971303MZC	XC3042-100PG132B	-100	PG132	TOP
5962-8971301M9C	XC3042-50CB100B	-50	CB100	BASE
5962-8971302M9C	XC3042-70CB100B	-70	CB100	BASE
5962-8971303M9C	XC3042-100CB100B	-100	CB100	BASE
5962-8971301MMC	XC3042-50CB100B	-50	CB100	LID
5962-8971302MMC	XC3042-70CB100B	-70	CB100	LID
5962-8971303MMC	XC3042-100CB100B	-100	CB100	LID
5962-8971301MYA*	XC3042-50CQ100B	-50	CQ100	BASE
5962-8971302MYA*	XC3042-70CQ100B	-70	CQ100	BASE
5962-8971303MYA*	XC3042-100CQ100B	-100	CQ100	BASE
5962-8971301MNA*	XC3042-50CQ100B	-50	CQ100	LID
5962-8971302MNA*	XC3042-70CQ100B	-70	CQ100	LID
5962-8971303MNA*	XC3042-100CQ100B	-100	CQ100	LID

\* Do Not Use for New Designs (package is obsolete). Use "CB" Package Instead.

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-8982301MXC	XC3090-50PG175B	-50	PG175	TOP
5962-8982302MXC	XC3090-70PG175B	-70	PG175	TOP
5962-8982303MXC	XC3090-100PG175B	-100	PG175	TOP
5962-8982301MZC	XC3090-50CB164B	-50	CB164	BASE
5962-8982302MZC	XC3090-70CB164B	-70	CB164	BASE
5962-8982303MZC	XC3090-100CB164B	-100	CB164	BASE
5962-8982301MTC	XC3090-50CB164B	-50	CB164	LID
5962-8982302MTC	XC3090-70CB164B	-70	CB164	LID
5962-8982303MTC	XC3090-100CB164B	-100	CB164	LID
5962-8982301MYA*	XC3090-50CQ164B	-50	CQ164	BASE
5962-8982302MYA*	XC3090-70CQ164B	-70	CQ164	BASE
5962-8982303MYA*	XC3090-100CQ164B	-100	CQ164	BASE
5962-8982301MUA*	XC3090-50CQ164B	-50	CQ164	LID
5962-8982302MUA*	XC3090-70CQ164B	-70	CQ164	LID
5962-8982303MUA*	XC3090-100CQ164B	-100	CQ164	LID

\* Package OBSOLETE. Use "CB" Package Instead.

## XC3100A Products

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-9561001MXC	XC3142A-5PG84B	-5	PG84	TOP
5962-9561002MXC	XC3142A-4PG84B	-4	PG84	TOP
5962-9561001MUC	XC3142A-5PG132B	-5	PG132	TOP
5962-9561002MUC	XC3142A-4PG132B	-4	PG132	TOP
5962-9561001MYC	XC3142A-5CB100B	-5	CB100	BASE
5962-9561002MYC	XC3142A-4CB100B	-4	CB100	BASE
5962-9561001MZC	XC3142A-5CB100B	-5	CB100	LID
5962-9561002MZC	XC3142A-4CB100B	-4	CB100	LID
5962-9561101MXC	XC3190A-5PG175B	-5	PG175	TOP
5962-9561102MXC	XC3190A-4PG175B	-4	PG175	TOP
5962-9561101MYC	XC3190A-5CB164B	-5	CB164	BASE
5962-9561102MYC	XC3190A-4CB164B	-4	CB164	BASE
5962-9561101MZC	XC3190A-5CB164B	-5	CB164	LID
5962-9561102MZC	XC3190A-4CB164B	-4	CB164	LID
5962-9561201MXC	XC3195A-5PG175B	-5	PG175	TOP
5962-9561202MXC	XC3195A-4PG175B	-4	PG175	TOP
5962-9561201MYC	XC3195A-5CB164B	-5	CB164	BASE
5962-9561202MYC	XC3195A-4CB164B	-4	CB164	BASE
5962-9561201MZC	XC3195A-5CB164B	-5	CB164	LID
5962-9561202MZC	XC3195A-4CB164B	-4	CB164	LID

## XC4000 Products

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-9471201MXC	XC4003A-10PG120B	-10	PG120	TOP
5962-9471202MXC	XC4003A-6PG120B	-6	PG120	TOP
5962-9471201MYC	XC4003A-10CB100B	-10	CB100	BASE
5962-9471202MYC	XC4003A-6CB100B	-6	CB100	BASE
5962-9471201MZC	XC4003A-10CB100B	-10	CB100	LID
5962-9471202MZC	XC4003A-6CB100B	-6	CB100	LID
5962-9225201MXC	XC4005-10PG156B	-10	PG156	TOP
5962-9225202MXC	XC4005-6PG156B	-6	PG156	TOP
5962-9225203MXC	XC4005-5PG156B	-5	PG156	TOP
5962-9225201MYC	XC4005-10CB164B	-10	CB164	LID
5962-9225202MYC	XC4005-6CB164B	-6	CB164	LID
5962-9225203MYC	XC4005-5CB164B	-5	CB164	LID
5962-9225201MZC	XC4005-10CB164B	-10	CB164	BASE
5962-9225202MZC	XC4005-6CB164B	-6	CB164	BASE
5962-9225203MZC	XC4005-5CB164B	-5	CB164	BASE

**XC4000 Products (continued)**

SMD Number	Equivalent "B" Grade P/N	Speed	Package	Mark Loc
5962-9752201QXC	XC4005E-4PG156B	-4	PG156	TOP
5962-9752201QYC	XC4005E-4CB164B	-4	CB164	BASE
5962-9752201QZC	XC4005E-4CB164B	-4	CB164	LID
5962-9230501MXC	XC4010-10PG191B	-10	PG191	TOP
5962-9230502MXC	XC4010-6PG191B	-6	PG191	TOP
5962-9230503MXC	XC4010-5PG191B	-5	PG191	TOP
5962-9230501MYC	XC4010-10CB196B	-10	CB196	BASE
5962-9230502MYC	XC4010-6CB196B	-6	CB196	BASE
5962-9230503MYC	XC4010-5CB196B	-5	CB196	BASE
5962-9230501MZC	XC4010-10CB196B	-10	CB196	LID
5962-9230502MZC	XC4010-6CB196B	-6	CB196	LID
5962-9230503MZC	XC4010-5CB196B	-5	CB196	LID
5962-9752301QXC	XC4010E-4PG191B	-4	PG191	TOP
5962-9752301QYC	XC4010E-4CB196B	-4	CB196	BASE
5962-9752301QZC	XC4010E-4CB196B	-4	CB196	LID
5962-9473001MXC	XC4013-10PG223B	-10	PG223	TOP
5962-9473002MXC	XC4013-6PG223B	-6	PG223	TOP
5962-9473001MYC	XC4013-10CB228B	-10	CB228	BASE
5962-9473002MYC	XC4013-6CB228B	-6	CB228	BASE
5962-9473001MZC	XC4013-10CB228B	-10	CB228	LID
5962-9473002MZC	XC4013-6CB228B	-6	CB228	LID
5962-9752401QXC	XC4013E-4PG223B	-4	PG223	TOP
5962-9752401QYC	XC4013E-4CB228B	-4	CB228	BASE
5962-9752401QZC	XC4013E-4CB228B	-4	CB228	LID
5962-9752501QXC	XC4025E-4PG299B	-4	PG299	TOP
5962-9752501QYC	XC4025E-4CB228B	-4	CB228	BASE
5962-9752501QZC	XC4025E-4CB228B	-4	CB228	LID

**Mil-PRF-38535 QML, Xilinx M Grade and Plastic Commercial Flows****1. Wafer Fab**

Operation	QML	M Grade (Hermetic)	Plastic Commercial
Manufacture	883B Compliant Facility	883B Compliant or non-compliant facilities	Jedec-26 Compliant or non-compliant facilities

**2. Assembly and Inspection**

Operation	QML	M Grade (Hermetic)	C Grade
2nd Op Inspection	100% per Method 2010	100% / Commercial standard	100% / Commercial standard
3rd Optical Inspection	100% per Method 2010	100% / Commercial standard	100% / Commercial standard
Final visual/mech. Inspection	100% per 5004	100% / Commercial standard	100% / Commercial standard
Mark Permanancy	see below	Sample / commercial standard	Sample / Commercial standard

**3. Test**

Screen	QML	M Grade (Hermetic)	C Grade
Temperature Cycling	100% per Method 1010	per method 1010	NONE
Constant Acceleration	100% per Method 2001	NONE	NONE
Fine/Gross Leak Test	100% per Method 1014	per Method 1014	NONE
Pre Burn-in Electrical Test @ 25°C	100% per part drawing	NONE	NONE
Burn-in	100% per Method 1015	NONE	NONE
+25°C Electrical Test	100% per part drawing	NONE	NONE
PDA	per 5004	N/A	N/A
+125°C Electrical Test	100% per part drawing	100% per part drawing	+73°C 100% per part drawing
-55°C Electrical Test	100% per part drawing	NONE	NONE
Mark Permanency	per Method 2015	see above	see above
QC Sampling Plan	per 5005; Group A	Test @ +125°C only, LTPD 2	+70°C for only LTPD 2
External Visual Inspection	per Method 2009	100% / Commercial standard	100% / Commercial standard
QCI Qualification Plan	per 5005; Groups B, C, D	N/A	N/A

**4. Qualification (Characterization)**

QML	M Grade (Hermetic)	C Grade
Characterization every six months per Mil-I-38535 Appendix A	Characterization at product introduction or major change	Characterization at product introduction or major change