

# GAL Development Support

Lattice Semiconductor Corporation (LSC) recommends the use of qualified programming equipment when programming LSC devices. Lattice Semiconductor works with several programming manufacturers to insure that there is cost effective equipment available. We have approved programmers in each of the following categories:

- Low Cost GAL Only Programmers
- Mid Range 28-pin Programmers
- Full Universal Programmers
- Production Programming Equipment

LSC conducts a very stringent qualification procedure, which includes a complete evaluation of the program-

ming, verification and load algorithms; verification of critical pulse widths and voltage levels, along with a complete yield analysis. The result is the best programming yields in the industry and a guarantee of 100% programming yields to customers using qualified programming equipment. Below are the third-party programmers which are qualified to program LSC devices.

For a current listing of LSC qualified programmers, please call LSC's Literature Distribution Department (Tel: 503-693-0287; FAX: 503-681-3037).

For compiler support, the following vendors provide design tools which support Lattice Semiconductor devices.

## Qualified Programmers

Vendor	Programmer
Data I/O	Autosite
	Unisite
	3900
	2900
	29B
	60A/H
Logical Devices	Allpro 88
	Allpro 40
Stag	System 3000
	ZL30B & ZL30A
	Quasar-U84 & Quasar-U40
System General	TURPRO-1 & TURPRO-1/FX
	SGUP-85A
SMS Microcomputer	Sprint Expert
	Sprint Plus
BP-Microsystems	BP-1200
	PLD-1128 & CP-1128
	PLD-1100
Advin	Pilot-U84 & Pilot-U40
	Pilot-GL & Pilot-GCE

## Logic Development Tools

Vendor	Logic Compiler
Accel Technology	Tango PLD
Cadence	PIC Designer Composer
	PIC Designer Concept
Data I/O	ABEL
ISDATA	LOG/iC Classic or LOG/iC 2
Lattice Semiconductor (Data I/O)	ISP Synario System
Logical Devices	CUPL
Mentor Graphics	PLSynthesis II
Minc	PLDesigner-XL
OrCAD	OrCAD PLD 386+
Omaton	Schema-PLD
Viewlogic	ViewPLD
Data I/O	Synario

# **GAL Development Support**

## **Programmer Development Tools Vendors**

**Accel Technologies**  
6825 Flanders Dr.  
San Diego, CA 92121  
TEL: 1-800-488-0680  
TEL: (619) 554-1000  
FAX: (619) 554-1019

**Advin Systems**  
1050-L Duane Ave  
Sunnyvale, CA 94086  
TEL: 1-800-627-2456  
TEL: (408) 243-7000  
FAX: (408) 736-2503

**BP Microsystems**  
1000 N Post Oak Road  
Houston, TX 77055-7237  
TEL: 1-800-225-2102  
TEL: (713) 688-4600  
FAX: (713) 688-0902  
BBS: (713) 688-9283

**Cadence Design Systems**  
555 River Oaks Parkway  
San Jose, CA 95134  
TEL: (408) 943-1234  
FAX: (408) 943-0513

**Data I/O/Synario Design Automation**  
10525 Willows Road N.E.  
P.O. Box 97046  
Redmond, WA 98073-9746  
TEL: 1-800-247-5700  
TEL: 1-800-426-1045  
TEL: (206) 881-6444  
FAX: (206) 882-1043

In Europe, contact:  
Data I/O Corp.  
TEL: +31 (0) 20-6622866

In Japan, contact:  
Data I/O Corp.  
TEL: (03) 432-6991

**ISDATA GmbH5**  
Daimlerstraße 51  
76185 Karlsruhe  
Germany  
TEL: 0721-751087  
FAX: 0721-752634

**Logical Devices**  
130 Capital Drive  
Golden, CO 80401  
TEL: 1-800-315-7766  
TEL: (303) 279-6868  
FAX: (303) 279-6869

**Mentor Graphics**  
8005 S.W. Boeckman Rd.  
Wilsonville, OR 97070  
TEL: (503) 685-7000  
FAX: (503) 685-1204

**Minc Incorporated**  
6755 Earl Dr.  
Colorado Springs, CO 80918  
TEL: (719) 590-1155  
FAX: (719) 590-7330

**OrCAD Systems Corp.**  
9300 S.W. Nimbus Drive  
Beaverton, OR 97008  
TEL: (503) 671-9500  
FAX: (503) 671-9501

**SMS Micro Systems**  
IM Grund 15  
D-88239 Wangen  
Germany  
TEL: (49) 7522-9728-21  
FAX: (49) 7522-9728-50

**Stag Microsystems**  
Silver Court  
Watchmead  
Welwyn Garden City  
Herts AL7 1LT  
England  
TEL: 44-1707-332-148  
FAX: 44-1707-371-503

In the U.S., contact:  
Devices, Inc.  
710 Lakeway, Suite 265  
Sunnyvale, CA 94086  
TEL: (408) 735-7824  
FAX: (408) 735-7828

**System General**  
3 Fl., No. 1, Alley 8, Lane 45  
Bao Shing Rd.  
Shin Dian  
Taipei, Taiwan R.O.C.  
TEL: 886-2-9173005  
FAX: 886-2-9111283

In the U.S., contact:  
System General  
1603A South Main Street  
Milpitas, CA 95035  
TEL: 1-800-967-4776  
FAX: (408) 263-6667  
FAX: (408) 262-9220  
BBS: (408) 262-6438

**Viewlogic Systems**  
293 Boston Post Rd. West  
Marlboro, MA 01752  
TEL: (508) 480-0881  
FAX: (508) 480-0882



Copyright © 1996 Lattice Semiconductor Corporation.

E<sup>2</sup>CMOS, GAL, ispGAL, ispLSI, pLSI, pDS, Silicon Forest, UltraMOS, Lattice Logo, L with Lattice Semiconductor Corp. and L (Stylized) are registered trademarks of Lattice Semiconductor Corporation (LSC). The LSC Logo, Generic Array Logic, In-System Programmability, In-System Programmable, ISP, ispATE, ispCODE, ispDOWNLOAD, ispGDS, ispStarter, ispSTREAM, ispTEST, ispTURBO, Latch-Lock, pDS+, RFT, Total ISP and Twin GLB are trademarks of Lattice Semiconductor Corporation. ISP is a service mark of Lattice Semiconductor Corporation. All brand names or product names mentioned are trademarks or registered trademarks of their respective holders.

Lattice Semiconductor Corporation (LSC) products are made under one or more of the following U.S. and international patents: 4,761,768 US, 4,766,569 US, 4,833,646 US, 4,852,044 US, 4,855,954 US, 4,879,688 US, 4,887,239 US, 4,896,296 US, 5,130,574 US, 5,138,198 US, 5,162,679 US, 5,191,243 US, 5,204,556 US, 5,231,315 US, 5,231,316 US, 5,237,218 US, 5,245,226 US, 5,251,169 US, 5,272,666 US, 5,281,906 US, 5,295,095 US, 5,329,179 US, 5,331,590 US, 5,336,951 US, 5,353,246 US, 5,357,156 US, 5,359,573 US, 5,394,033 US, 5,394,037 US, 5,404,055 US, 5,418,390 US, 5,493,205 US, 0194091 EP, 0196771B1 EP, 0267271 EP, 0196771 UK, 0194091 GB, 0196771 WG, P3686070.0-08 WG. LSC does not represent that products described herein are free from patent infringement or from any third-party right.

The specifications and information herein are subject to change without notice. Lattice Semiconductor Corporation (LSC) reserves the right to discontinue any product or service without notice and assumes no obligation to correct any errors contained herein or to advise any user of this document of any correction if such be made. LSC recommends its customers obtain the latest version of the relevant information to establish, before ordering, that the information being relied upon is current.

LSC warrants performance of its products to current and applicable specifications in accordance with LSC's standard warranty. Testing and other quality control procedures are performed to the extent LSC deems necessary. Specific testing of all parameters of each product is not necessarily performed, unless mandated by government requirements.

LSC assumes no liability for applications assistance, customer's product design, software performance, or infringements of patents or services arising from the use of the products and services described herein.

LSC products are not authorized for use in life-support applications, devices or systems. Inclusion of LSC products in such applications is prohibited.

#### LATTICE SEMICONDUCTOR CORPORATION

5555 Northeast Moore Court  
Hillsboro, Oregon 97124 U.S.A.

Tel.: (503) 681-0118

FAX: (503) 681-3037

<http://www.latticesemi.com>

November 1996

---