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A complete and uniquely accessible offering of worldwide technical support services is available to Xilinx users.

Xilinx Field Application Engineers, located at sales offices and technical support centers worldwide, provide local engineering support, including design evaluation of new projects, close consultation throughout the design process, special training assignments, and new product presentations. Because their role as advisors and troubleshooters keeps them constantly on the go, they are best used, not for general questions, but for more targeted queries such as those related to architectural recommendations. The worldwide network of Xilinx sales representatives and distributors also provide local technical support for Xilinx users.

More general queries can be directed to the telephone "hotlines". Permanent teams of expert Technical Support Engineers located in the United States, United Kingdom, France, Germany, and Japan can handle problems and answer questions right on the spot, ensuring that the design process keeps moving forward.

In addition, Xilinx has several automated services, collectively referred to as X-TALX, to provide answers to user's queries 24 hours a day. These include a world wide web site, E-mail server, automated FAX system, bulletin board system, and special interest E-mail groups.

Many different publications assist users in completing designs quickly and efficiently, including technical manuals, data sheets, the AppLINX CD-ROM (a regularly-updated collection of the latest application notes and design hints), and the quarterly XCell newsletter.

For more in-depth support and instruction, a dedicated training organization conducts technical training classes worldwide. Courses geared for both novice and experienced users are available.

The following Technical Support Services are discussed in more detail in this chapter:

- Technical Support Hotline
- X-TALX: The Xilinx Network of Electronic Services
  - WebLINX World Wide Web Site
  - XDOCs E-mail document server
  - XFACTS document server
  - Xilinx Technical Bulletin Board Service
- Technical Literature
- AppLINX CD-ROM
- XCELL newsletter
- Training Courses

## Technical Support Hotlines

The technical support hotlines give Xilinx users direct telephone access to Xilinx Technical Support Engineers worldwide, providing a quick resolution to any problem that occurs during the design process. Technical questions also may be submitted via FAX or E-mail.

### Hotline Support, U.S.

Customer Support Hotline	800-255-7778 Hrs: 8:00 a.m. - 5:00 p.m. Pacific time
Customer Support Fax Number	408-879-4442 Avail: 24 hrs/day-7 days/week
E-mail Address	hotline@xilinx.com
Electronic Technical Bulletin Board	408-559-9327
Customer Service (Call for software updates, authorization codes, documentation updates, etc.)	408-559-7778, Ask for customer service

### Hotline Support, Japan

telephone: (81) 3-3297-9163  
fax: (81) 3-3297-0067  
e-mail: jhotline@xilinx.com

### Hotline Support, Europe

#### UK, London Office

telephone: (44) 1932 820821  
fax: (44) 1932 828522  
Bulletin Board Service: (44) 1932 333540  
e-mail: ukhelp@xilinx.com

#### France, Paris Office

telephone: (33) 1 3463 0100  
fax: (33) 1 3463 0959  
e-mail: frhelp@xilinx.com

#### Germany, Munich Office

telephone: (49) 89 991 54930  
fax: (49) 89 904 4748  
e-mail: dlhelp@xilinx.com

## X-TALX: The Xilinx Network of Electronic Services

### WebLINX World Wide Web Site ([www.xilinx.com](http://www.xilinx.com))

Our World Wide Web site provides access to current information, including product data sheets, application notes, press releases, financial status, employment opportunities, and an on-line technical support database. *SmartSearch™*, our industry-wide search engine, is the definitive resource for programmable logic information. *SmartSearch™* Agents will watch the Web for you and inform you, via e-mail, when new or updated information is found. An FTP site also is available to facilitate the quick and easy transfer of design and data files ([ftp.xilinx.com](ftp://ftp.xilinx.com)).

### XDOCS E-mail Document Server

The XDOCS E-mail system provides 24-hour a day, 7 days a week access to the same database that the Technical Support Engineers use. This database is updated regularly with information on bugs, workarounds, and helpful hints. Via E-mail, users can search for a specific record, or supply keywords to trigger a search of the database; XDOCS will send the requested information by return E-mail. Automated updates also can be sent on a periodic basis notifying users of new additions to the system. To subscribe to XDOCS, send an E-mail to [xdocs@xilinx.com](mailto:xdocs@xilinx.com) with "help" as the only word in the subject header.

### XFACTS Document Server

The XFACTS automated FAX system provides the same information as XDOCS, but uses a phone/FAX interface instead of E-mail. Using a touch-tone telephone, users can request documents that are sent to their FAX machine. Located in San Jose, California, the XFACTS system can be reached at 408-879-4400.

### Xilinx Technical Bulletin Board Service (408) 559-9327

To provide users with up-to-date information and software support, Xilinx provides a 24-hour electronic bulletin board system (BBS). The Xilinx Technical Support BBS is available to all registered Xilinx development system users. Users with full privileges can browse files on the bulletin board, download those of interest, or upload files to Technical Support Engineers.

All BBS files can be accessed through the Xilinx Web and FTP locations.

New bulletin board users must answer a questionnaire when they first access the BBS. After answering the questionnaire, callers can browse through the file areas or upload files. A caller with a valid XACT protection key or valid host ID will be given full user privileges within 24 hours.

The software and hardware requirements for accessing the BBS are as follows:

Baud Rate	28.8K or less bps
Character Format	8 data bits, no parity, 1 stop bit
Transfer Protocols	ASCII, Xmodem, Ymodem, Zmodem

The Xilinx Technical Support BBS is a menu-driven system. To choose a menu command, simply type the highlighted first letter of the command. Most commands are "hot keys" and do not require you to press the return key. Here is a quick description of the available menu commands:

#### Main

U)pload	Upload a file to the Technical Support group.
D)ownload	Download a file. This assumes you already know the filename, otherwise select the File Manager.
F)ile Manager	Takes you to the File Manager menu. This menu is for locating files.
S)ystem Folder	Takes you to the System menu. This menu is for changing your password, display options, etc.

#### File Manager

F)lag	Flag files for download.
L)ocate Files	Use wildcards to search for files.
N)ew Files	Lists recently added files.
Z)ippy DIR scan	Searches for text in file descriptions.
#'s	Chooses a file area to browse.

#### System

M)ode of display	Toggles between text and graphics display
P)age length	Changes the number of printed lines between "More?" prompts.
T)ransfer Protocol	Changes the default transfer protocol.
V)iew Settings	Shows current settings and user information.
W)rite User Info	Changes current user settings.

**E-mail addresses for questions related to specific applications**

Digital Signal Processing applications	dsp@xilinx.com
PCI-bus applications	pci@xilinx.com
Plug and Play ISA applications	PnP@xilinx.com
PCMCIA card applications	pcmcia@xilinx.com
Asynchronous Transfer Mode applications	atm@xilinx.com
Reconfigurable Computing applications	reconfig@xilinx.com

**Technical Support E-mail addresses**

hotline@xilinx.com	USA, Xilinx Headquarters
ukhelp@xilinx.com	United Kingdom
frhelp@xilinx.com	France
dlhelp@xilinx.com	Germany
jhotline@xilinx.com	Japan

## Technical Literature

Xilinx offers many different publications to assist users in completing designs quickly and efficiently. These include technical manuals, Data Books, data sheets, application notes, AppLINX CD, and the XCELL newsletter. Many of these publications are available on-line at the Xilinx WebLINX World Wide Web site.

As part of the development system products, Xilinx provides manuals and supporting documents for the development system tools, libraries, CAE tool interfaces, and related software tools. Many of these manuals are available on the CD that holds the software as well as hardcopy format. On-line help facilities also are an integral part of the development system products.

### AppLINX

AppLINX is a collection of current application notes and other new technical documentation provided on a CD-ROM for easy reference by the design engineer. All the material on the CD is provided in Adobe Acrobat format for easy viewing and printing. The AppLINX CD is updated regularly as new material becomes available.

## XCELL Newsletter

XCELL, the quarterly journal for Xilinx programmable logic users, is dedicated to supplying up-to-date information for system designers. A typical issue includes descriptions of new products, updates on component and software availability and revision levels, application ideas, design hints and techniques, and answers to frequently-asked questions.

To add your name to the XCELL subscription list, please send your name, company affiliation, and mailing address to Brad Fawcett, XCELL editor, via FAX at 408-879-4676 or via e-mail sent to [brad.fawcett@xilinx.com](mailto:brad.fawcett@xilinx.com).

## Programmable Logic Training Courses

All users of Xilinx products should attend one of our Training Courses. Attending a Xilinx Training Course is one of the fastest and most efficient ways to learn how to design with FPGA or CPLD devices from Xilinx. Hands-on expert instruction with the latest information and software will allow you to implement your own designs in less time with more effective use of the devices.

Xilinx offers a variety of classes to meet your specific needs. Training centers around the world schedule classes on a regular basis, and the classes can even be brought to your own facility.

### What You Will Learn

Not only will you learn about our products, but we will recommend the best ways to use the software based on our years of experience with thousands of designs. You will learn how to efficiently enter, implement, and verify your design. The powerful yet easy-to-use Xilinx development system allows you to utilize the Xilinx automatic mode, or take a power-user approach and direct the automatic tools to the best implementation of your design.

### Prerequisites

Students need only have a background in digital logic design. Basic familiarity with the PC or workstation is helpful but not required. It will benefit you to learn your design entry tool of choice before attending the Xilinx class, including an HDL language for the synthesis-based classes. Update or Advanced classes require previous experience with the Xilinx products.

### Benefits

- Start or Complete Your Design During the Class
- Reduce Your Learning Time
- Make Fewer Design Iterations
- Get to Market Faster
- Lower Production Costs
- Increase Quality

### The Training Classes

Xilinx offers classes for both schematic entry users and synthesis users, and both new and experienced users. All Xilinx classes focus on the Xilinx products, independent of the specific design entry tool.

### Hands-On Experience

Each class includes over two hours each day for hands-on labs. There is at least one computer for every two people in the class.



### Instructors

Xilinx Training Courses have been successfully held worldwide for over six years. The instructors are Xilinx experts who are skilled at passing that knowledge on to fellow engineers. A dedicated Training organization at Xilinx works closely with the Applications and Engineering groups to keep the classes up-to-date with the latest improvements and recommendations for Xilinx and third-party tools.

### Course Materials

All course materials are supplied by Xilinx. Every student gets an excellent reference tool in the form of course notes, that include all the material presented during the class. The course notes are bound for easy use and include additional reference material beyond what is covered in the class.

### Product Coverage

Xilinx classes will cover the latest released versions of our devices and development systems. While all available products are covered, emphasis is placed on the more popular and/or recommended solutions. New products are added to the class as they become available.

## Schematic-Based Course Outline

The schematic-based Xilinx Training Class lasts three days. All North American training sites, and most international locations, teach the same class.

- Introduction
  - Development System Overview
  - Architecture Overview
- Xilinx Design Flow
  - Schematic Entry Guidelines
  - Design Manager
  - Flow Engine Automatic Translation
- Timing Specification
  - XACT-Performance Delay Specification
  - Static Timing Analyzer
- Designing for Xilinx FPGAs
  - Combinatorial Logic
  - Registered Logic
  - Memory Design
  - I/O Design
  - X-BLOX Module Generation
- Designing for Xilinx CPLDs
- Text Entry Guidelines
  - Xilinx-ABEL software
- Floorplanning
  - Incremental Design
  - XACT-Floorplanner
  - Relationally-Placed Macros
- Timing Analysis
  - Good Design Practices
  - Simulation Guidelines
- Configuration
  - Programming Modes
  - Bitstream Generator
  - PROM File Formatter
  - Hardware Debugger Download & Readback

## Synthesis-Based Classes

Designing with high-level languages (VHDL and Verilog) and synthesis tools can be very different from using schematic entry. As a result, Xilinx offers classes that focus on VHDL and Verilog design entry for Xilinx products. Xilinx highly recommends the synthesis-based class for anyone using VHDL or Verilog for design entry. Synthesis-based classes include the following additional topics, using HDL code for design entry:

- Good coding styles
- Hierarchy within synthesis
- Synthesis design flow
- Controlling Xilinx implementation tools with synthesis

## Synthesis-Based Course Outline

The following is a complete outline of the three-day synthesis-based class:

- Introduction
- FPGA Architecture
- Xilinx-Synopsys Design Flow
  - Good Coding Styles
  - Synopsys Scripts
  - Design Manager
  - Automatic Translation
- Timing Specification
  - XACT-Performance Delay Specification
  - Static Timing Analyzer
- Simulation Guidelines
- Good Design Practices
- Coding for Xilinx FPGAs
  - Combinatorial Logic
  - Carry Logic and X-BLOX Module Generation
  - Registered Logic
  - I/O Design
  - Memory Design
- Hierarchy
- Floorplanning
  - Incremental Design
  - XACT-Floorplanner
- Configuration
  - Programming Modes
  - Bitstream Generator
  - PROM File Formatter
  - XChecker Download & Readback

## Update and Advanced Training Classes

If you have already attended a Xilinx class or have experience using Xilinx products, consider attending a one-day Update or Advanced Training session. These sessions will be most useful if you have the latest software.

### Update Classes

One-day Update classes focus on the latest released products from Xilinx, describing them in relation to previous versions. For example, an Update class is available describing the new features in XACT *step* 6.0. The class will be offered for a limited time at regional sites, or can be brought to your facility. Browse the Xilinx web site ([www.xilinx.com](http://www.xilinx.com)) for the latest information regarding special Update classes on new products from Xilinx.

## **Advanced Training Classes**

If you have already attended a Xilinx class or have experience using Xilinx products, consider attending a one-day Advanced Training session. Advanced Training classes are offered at no charge to current in-warranty Xilinx customers; otherwise tuition is \$200. Advanced Training sessions can vary according to the interests of the students. Popular topics include:

- Example Logic Design Techniques
- Timing Analysis and Avoiding Timing Hazards
- Design Methodology for Tough Designs
- Details of Advanced Optimization Capabilities
- XACT Design Editor
- Floorplanning

Advanced Training classes are held regularly at Xilinx headquarters, and sometimes at regional locations, but are replaced by Update Classes when appropriate. See the web site ([www.xilinx.com](http://www.xilinx.com)) for scheduled classes, or contact Xilinx Training to hold an Advanced Training session at your site.

## **Training Locations**

### ***Xilinx Headquarters***

Classes are held regularly at Xilinx headquarters in San Jose, California. During the class, you may elect to meet one-on-one with Xilinx Applications engineers to discuss specific issues not covered in the class. Topics may include using a specific third-party tool, optimizing your particular design, or more advanced issues beyond the coverage of the class.

### ***North American Distributor Locations***

Xilinx distributors sponsor training classes jointly with Xilinx, using the same material as the headquarters classes. Since the distributor sponsors the class, the tuition cost is often reduced to \$495 for customers of the sponsoring distributor. Check with the distributor when registering. Locations include over fifty cities across North America.

### ***International Locations***

Xilinx classes are held throughout Europe, Asia, India, Israel, South Africa, Australia, South America, and other international locations. Classes vary in length and tuition, but are based on the same material used in North America. Contact your local Xilinx sales office or representative for classes in your area.

## **Customer-Site Classes**

Xilinx can bring a Training Course to your own facility for the greatest convenience to your company.

### ***On-Site Classes Provide Additional Benefits:***

#### **No Travel Costs**

On-site Xilinx training classes eliminate travel time and expenses:

- No airfare
- No hotel bills
- No car rental

#### **Classes Tailored To Your Needs**

On-site classes can be tailored to meet the specific needs of your company:

- Convenient class time and location
- Projects of a proprietary nature can be discussed openly
- Students can use their own equipment and begin an actual design right in class

#### **Costs: North America**

Prices start at \$4,500 for a minimum class size of six students.

#### **Costs: International**

- Prices vary; contact your local Xilinx sales representative.

Included in class fees:

- A Xilinx-certified instructor
- Training materials for each student
- PC for every two students (or if you prefer, the training labs can be done on your PCs or workstations)

### ***Scheduling a Class***

To schedule a training class at your facility and determine pricing, call the Xilinx sales office nearest you, or your local Xilinx sales representative. On-site training classes are popular, so the more advanced notice we have, the better our ability to schedule your class exactly when you want it.



## Registration

### ***Tuition***

Class tuition in North America is \$1,000 per student for the three-day classes, including the synthesis-based and workstation-based classes at Xilinx headquarters. The distributor-sponsored, schematic-based classes are offered at a reduced rate of \$495 for customers of the sponsoring distributor. On-site classes start at \$4500 per class, and vary according to the class and the number of students. For international locations, call the local registrar for pricing.

Most classes include a full lunch, with morning and afternoon snacks. Let the registrar know if you have any special dietary needs when registering for the class.

### ***Money-back Guarantee***

We are so confident you will be satisfied with the benefits of a Xilinx training class that we offer the following guarantee:

**Full refund of the class cost if you are not completely satisfied.**

## ***Enrollment***

To enroll, call the registrar for the location where you would like to attend a class. Or you may call the Training Registrar at Xilinx headquarters at (800) 231-3386 or contact your local sales office. You may also register on-line at [www.xilinx.com](http://www.xilinx.com).

### ***Xilinx Training Registrar***

Training Registrar

Xilinx, Inc.

2100 Logic Drive

San Jose, CA 95124

Phone: (800) 231-3386 x1

Fax: (408) 879-4676, attn: Customer Training Registrar

E-mail: [customer.training@xilinx.com](mailto:customer.training@xilinx.com)

Register on-line: [www.xilinx.com](http://www.xilinx.com)

Location		Tuition	Benefits
North America	Xilinx Headquarters	\$1,000	<ul style="list-style-type: none"> <li>• Can meet with applications engineers</li> <li>• Classes held frequently</li> <li>• All class types available</li> </ul>
	Distributor Locations	\$495	<ul style="list-style-type: none"> <li>• Lower cost for distributor's customers</li> <li>• Local</li> </ul>
	Customer Site	Starts at \$4,500	<ul style="list-style-type: none"> <li>• Convenience; can focus on specific issues</li> </ul>
	Update	Typically \$100	<ul style="list-style-type: none"> <li>• One day, focus on new products</li> </ul>
	Advanced	Free	<ul style="list-style-type: none"> <li>• For experienced, in-warranty users</li> </ul>
International	International Locations	Varies	<ul style="list-style-type: none"> <li>• Offered in over 21 countries</li> <li>• Native language</li> </ul>
	Customer Site	Varies	<ul style="list-style-type: none"> <li>• Convenience</li> <li>• Can focus on specific issues</li> </ul>

