

# XTEND-G3<sup>®</sup> Development Tool Board

The XTEND, **XA** Trainer and **Expandable Narrative Design**, is designed to provide the user with a stable hardware/software platform for application development with the XA-G3.

XTEND may also serve as a quick prototype for the actual user application. With the on-board prototype area or optional expansion boards, the user can quickly get a new customized design running with the XA-G3.



## XA-G3 Highlights

The Philips XA-G3 Microcontroller is the new 16-bit extension to the popular 80C51 family of microcontrollers. This powerful single-chip device includes the following features:

- 20-bit address range for up to 1MB each of code and data memory (the XTEND-G3 supports up to 256KB each of code and data memory)
- 512 bytes of on-chip RAM
- 24 MHz operation for 10 to 100 times 80C51 performance
- Fully static operation with support for idle and power down modes
- Three standard 80C51 type timers with enhanced features + Watch-dog-timer
- Two standard 80C51 type UARTs with enhanced features
- Four 8-bit I/O ports with 4-state capability
- Hardware support for multi-tasking software
- Instruction set tailored for C and high-level language support



**XA**  
**TRAINER &**  
**EXPANDABLE**  
**NARRATIVE**  
**DESIGN**

*Let's make things better.*

# XTEND-G3<sup>®</sup> by FDI

The XTEND hardware, software and documentation are designed and written with your ease of use in mind. The intent is to provide the user with a well documented platform which can easily be modified to support different user and application requirements.

The CMX RTX Real-Time Operating System which is running on the board is also well documented and thoroughly explained so that a user can easily add or modify functions of the basic operating system. The external XA-G3 monitor, XMON, allows host communication with a PC and provides an easy platform for user software development and modification. Complete software for all the XTEND functions is provided on disk and may be freely modified and used.

For flexibility, the XTEND supports both internal and external memory operation on the XA-G3. This allows the user to operate in single-chip mode, if memory allows, and thus

preserve the XA-G3's I/O and hardware functions for other uses. The XTEND also supports external memory operation with up to 256KB each of code and data memory. The external code space can be populated with EPROM, FLASH or NVSRAM for flexibility.

The XTEND provides two RS232 serial communications ports which are connected to the two high-speed UARTs on the XA-G3. This allows rate conversion between two RS232 devices, or serial buffering between a host computer and a printer, and intelligent data stream monitoring.

Through software, the XTEND also supports an optional 12C interface and bus monitor. This allows communication between any 12C compatible source and the XTEND and also allows the user to monitor 12C bus activity between other devices.

## Specifications

- Philips XA-G3 Microcontroller Socket for 44-pin PLCC supporting both internal and external code execution
- 128KB Standard FLASH ROM Code Space, expandable to 256KB (dual sockets for 16-bit access)
- Code Space supports EPROM, FLASH (5V), NVSRAM, or SRAM
- 64KB Standard High-Speed Data Space SRAM, expandable to 256KB (dual sockets for 16-bit access)
- Two DB-9 RS232 Serial Communications Ports with Optional Hardware Handshake. RS232 Cable and DB25 adapter included.
- On-board speaker for tone generation
- LCD Interface for character type LCD Modules with 16 character LCD included
- 60-pin Expansion Header for Full Expansion Capability (1MB memory and I/O supported)
- 9 VDC Input with on-board 5V regulator, UL Approved Power Supply included
- 5.25" x 7.25" 2-layer PCB with Full Silkscreen Information
- 2.5" x 1" wire-wrap area on-board
- Four TTL User Inputs via double-row header
- Two User Input Pushbuttons
- Eight TTL User Outputs via single-row header
- Users Manual and Schematics Included
- Optional 12C Interface/Monitor
- Planned Expansion Boards Include:
  - 12C Expansion Board with LCD, Keypad, Real Time Clock and EEPROM
  - Prototype Board with 'Pad-per-hole' Area
  - Virtually any type may be custom designed
  - DRAM Expansion Board with CPLD Controller
- Standard Software Includes the Following:
  - Internal XA-G3 Monitor (XMON) Supporting:
    - Serial Host Communication
    - Register Dump/modify
    - External Data Memory Dump/Modify
    - External Code Memory Load (from RS232)
    - Code Disassembly
    - Execute Code with up to 4 user defined breakpoints
    - Single-step through Code
  - Example Routines for Applications
    - XA-G3 Initialization and Setup Routines
    - Serial Port Drivers
    - Timer/Counter Drivers
    - Watchdog Timer Setup
    - Interrupt Routines
    - 8051 to XA Translation Examples
  - CMX Evaluation Package
    - CMX RTOS XA Demo for XTEND
    - CMX RTOS Demo for the PC
    - HiTech XA C Compiler Demo
  - Philips XA Assembler, Simulator and 8051 to XA Translator

## Ordering Information

Part Number: XTEND-G3  
Price: \$249.00 (USD) complete  
Warranty: 30-day money back guarantee  
Availability: Stock  
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