4803 SDK

4803 SOFTWARE DEVELOPMENT KIT

The easy way to develop custom firmware for a GPIB interface

- Includes all necessary software packages.
  Nothing more to buy.
- Runs on any x86 PC with MS Windows 95.
  Uses virtually any PC with no special requirements
- Includes source, header and make files.
  Saves setup time.
- SCPI parser handles single and multilevel commands.
  Easy customization of the 4803's firmware for your application.
- Program written in ANSI Standard C language.
  Uses popular high-level language.

DESCRIPTION

The 4803 Software Development Kit provides an easy way to develop custom firmware for the 4803 GPIB Interface Card. The 4803 SDK supplies a library of functions and files that lets the user modify, develop and test custom firmware on a standard x86 PC. The custom firmware can be used to integrate the 4803 into the end product by adding custom commands, enable front panel controls, or by having the 4803 perform special functions that enhance the product's capability. Applications include adding a GPIB interface to instruments, using the 4803 to control a small system or building test chassis,

Easy Customization

The user's custom firmware builds on the 4803's standard program which includes support for all of the 4803's digital interface functions, all GPIB functions and all IEEE-488.2 common commands. The 4803 SDK includes a SCPI parser which can handle single-level commands as well as SCPI multilevel, branch type commands. This lets the user create the type of command set that best fits the end product.

Configuration Parameters

The 4803's standard configurable functions include the configuring the digital interface for data direction, polarity and initial values. Other configurable functions include the IDN message, GPIB address and address mode. The 4803 SDK lets the user define additional configurable parameters that can be saved in the 4803's flash memory. The changed values become the 4803's default values when the card is reset or powered on.

Creating the Program

The basic steps to creating a custom program are: install the development kit in a x86 PC, verify the software installation, and then modify the standard program. Verification is done by compiling the standard 4803 program and saving the resulting HEX file in a flash chip. The flash chip is then put into a 4803 to verify its operation.

The standard program is written in ANSI Standard C and is a documented program that can be modified in steps to create the custom program. All of the I/O routines

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4803 SDK: DESCRIPTION CONTINUED

and GPIB functions are embedded in the 4803 library. These routines are fully tested and need not be changed. The IEEE-488.2 common commands should also be kept. New commands and functions that reflect the capabilities of the user's product should be added to the 4803's parser. The other 4803 specific commands can be kept or replaced at the user's discretion. The new command routines are linked to the 4803 library functions and compiled. The compiled code with the new commands and functions can be simulated and tested in the PC and changes made as required. When done, the debugged program is compiled and downloaded into a flash memory chip. The flash chip is then inserted into a 4803 and tested as part of the end product.

Software Development Kit

The 4803 SDK includes IAR Systems' C language complier, make files, 4803 Source and ICS's GPIB library files. The IAR Systems' C Language Compiler incorporates a Z180 Assembler, Linker and XLIB Librarian. A C-Spy debugger can be used to debug the user's C language code. ICS's make and header files have been developed and tested on a PC running Windows 95. The user can use these files without any alterations compile his own program. The 4803 source code includes all of the functions in the 4803's SCPI command table. The IEEE-488.2 commands and the GPIB functions are part of ICS's GPIB library file. The library functions are fully documented and include example usage of all functions in a manner similar to most C compilers.

The Software Development Kit also includes a description of the parser's operation, instructions on how to add additional commands and functions to the 4803's firmware and programming examples. All of the components of the Software Development Kit were selected and have been tested for their compatibility and ease of use. The library and SDK components have been proven by in-house usage in numerous products.

Covered Models

The Software Development Kit can be supplied with source code and header files for ICS Models 2303, 4863 and 2363 Digital Interfaces.

4803 SDK: SPECIFICATIONS

Required Computer

Intel Pentium or equivalent processor is recommended. The computer should have minimum of 8 Mbytes of available RAM space and 10 Mbytes of free hard drive space. The computer should be running Windows 95 or Windows NT.

Although the IAR Systems' C Language Compiler is specified to operate with earlier processors like a 386, ICS's make files and other files have been developed and tested with a Pentium computer.

Included Items

SDK Files: 4803 SDK header and make files plus 4803 standard Source files.

Compiler: IAR Systems C Language Compiler with Z80 Assembler, Linker and Librarian. C-Spy Debugger.

Documentation: Instruction manual, program modification directions and reference library.

Two spare 4803 flash memory chips

Flash Programmer

Recommended flash programmers:

Needham EMP-20 Device Programmer
or
Needham EMP-30 Device Programmer with 08A/B module for AMD AM29F010 Flash chip.

ORDERING INFORMATION

	Part Number
4803 Software Development Kit	114598