

# DATA SHEET

## **Development tools** **I<sup>2</sup>C Specific information**

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## I<sup>2</sup>C Specific information

## Development tools

### I<sup>2</sup>C-BUS DEVELOPMENT TOOLS FOR ALL SYSTEMS

#### OM1022

This Philips Semiconductors support tool, called the I<sup>2</sup>C-analyzer (or in the US, Port MSC) is a PC board that can be connected with a cable to the Centronics printer port via a 25-pin sub-D connector. The I<sup>2</sup>C has a 4-stake connector for convenient use in the laboratory. There are several flavours to this board, with the latest version supporting multimaster operation. A Philips 8400-series microcontroller executes the low-level I<sup>2</sup>C tasks on this board, and the Centronics port is used for two-way communications between the PC software and the microcontroller. Control programs for the Philips interface will run on any IBM-compatible PC. The software is mainly intended for interactive control of devices on the I<sup>2</sup>C-bus. The user can interactively construct, send and receive I<sup>2</sup>C messages. A database, which comes with the software, contains information about many specific devices, thus making operation is even easier for many Philips devices. The user is prompted to enter control data for the specific registers that are relevant to the device, and the software takes care of the routines by checking the validity of the input data and constructing the correct I<sup>2</sup>C message. An illustrated description of the internals of the controlled device and its status is available for some devices.

Currently, four programs are supplied with the OM1022 that provide various control options for specific and general purpose I<sup>2</sup>C devices.

|                        |             |
|------------------------|-------------|
| I <sup>2</sup> C TV    | version 3.5 |
| I <sup>2</sup> C radio | version 2.6 |
| I <sup>2</sup> C PLL   | version 2.3 |
| I <sup>2</sup> C CELL  | version 1.5 |

The *Users Guide to I<sup>2</sup>C-bus Control Programs* and *The I<sup>2</sup>C-bus and how to use it* brochures are also included with each OM1022. The ordering code for the OM1022 is 9339 931 10112.

### I<sup>2</sup>C/ACCESS.bus Monitor MIIC-101

The MIIC-101 is a stand-alone trouble shooting tool for the I<sup>2</sup>C and ACCESS.bus. When connected to an I<sup>2</sup>C-bus or ACCESS.bus network, the 101 bus monitor can collect, display or upload information on all bus activity. Its key features are:

- I<sup>2</sup>C and ACCESS.bus compatible
- operating modes: line status, forward/backward trace, view and remote
- monitoring of all or selected bus addresses
- trace buffer stores up to 2700 messages
- easy to read alphanumeric display (byte, message and buffer scrolling)
- hand-held portable unit (battery, external supply or bus-powered)
- RS-232 port supports remote data capture and uploading.

The MIIC-101 is manufactured by:

Micro Computer Control Corporation  
PO Box 275  
17 Model Avenue, Hopewell  
New Jersey 08525  
USA

Tel.+1 609 466 1751

Fax+1 609 466 4116

### PF8681 I<sup>2</sup>C-bus and ACCESS.bus Analysis Support Package

The PF8681 has been designed for use with the PM3580 family of logic analyzers. It provides facilities for analyzing and troubleshooting data streams on the I<sup>2</sup>C-bus and ACCESS.bus.

Captured data from either bus can be displayed on a logical analyzer screen in various number systems. The PF8681 includes a disassembler for both the I<sup>2</sup>C-bus and ACCESS.bus. The adapter allows simultaneous measurements in the timing and state domain without any reconnection or multiple probing of the I<sup>2</sup>C signal lines. This single probing approach avoids additional DC and AC loading of the I<sup>2</sup>C and ACCESS.bus signal lines.

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The I<sup>2</sup>C-bus disassembler supports all present day features of the I<sup>2</sup>C-bus system including 10-bit and fast-mode. The ACCESS.bus disassembler supports the BASE-protocol specifications as mentioned in the ACCESS.bus specifications version 2.0.

The PF8681 I<sup>2</sup>C/ACCESS.bus package includes an adaptor, disassembler and special ACCESS.bus interface cable. Pricing and delivery is available from Fluke.

### Calibre ICA-90 plug-in, half length IBM-PC compatible I<sup>2</sup>C adapter card

This PC card interfaces to the I<sup>2</sup>C-bus via a 9-pin D-connector. It is based on Philip's PCF8584 I<sup>2</sup>C-bus controller IC, which can interface the bus at high speeds. Calibre supplies the board with a library of I<sup>2</sup>C-control routines in both C and Turbo BASIC, which can be retrieved by the user's application software. These routines support both master and slave operation. The software is not interactive (i.e. users must write and compile their own programs) but the interface to the library routines is straightforward, and examples are supplied. They also supply a stand-alone monitor program with the ICA-90. This allows non-intrusive, real-time tracing of I<sup>2</sup>C-bus activity. Captured data is stored in PC memory and until the buffer is full, when the trace stops and the data is formatted and moved onto a disk file. Data presentation includes occurrences of Start, Stop and Acknowledge conditions. Users can display and analyze the data with any word processor or browsing program. The monitor program requires at least a 6 MHz 286-based PC or faster. This board is recommended for speed-critical or complex I<sup>2</sup>C-systems (i.e. Multimaster) due to its real-time monitor capability.

You can purchase the ICA-90 from:

Calibre Electronics Ltd.  
Cornwall House  
Cornwall Terrace  
Bradford West Yorkshire  
England BD8 7JS

Tel. +44 1274 394125  
Fax +44 1274 730960

or

Saelig Co.  
1193 Moseley Rd.  
Victor  
New York 14564  
USA

Tel. +1 716 425 3753  
Fax +1 716 425 3835

### I<sup>2</sup>C control and analysis tools

AET in Germany supply a variety of I<sup>2</sup>C-bus and analysis tools, such as:

- PC-RIC RS232 to I<sup>2</sup>C-bus convertor
- IDB I<sup>2</sup>C demonstration board for the PC (eight I<sup>2</sup>C peripherals plus software driver source-code in Pascal, Borland C++ and Microsoft-C)
- MAB I<sup>2</sup>C 100: an I<sup>2</sup>C magnetic card reader
- ITM I<sup>2</sup>C PC monitor and I<sup>2</sup>C controller (PC plug-in card)
- SIMON I<sup>2</sup>C PC monitor software for the ITM I<sup>2</sup>C controller card.

For more information on these products, contact:

ART Automatisierung & Rechnertechnik GmbH  
Johann-Kraus Strasse 8a  
88662 Überlingen  
Germany

Tel. +49 7551 4056  
Fax +49 7551 4058

### I<sup>2</sup>C-BUS EVALUATION BOARDS

#### OM4151/S87C00KSD

I<sup>2</sup>C-bus evaluation board with microcontroller, LCD, LED, Par. I/O, SRAM, EEPROM, clock, DTMF generator, AD/DA conversion. This board is available from Philips Semiconductors.

#### OM5027

I<sup>2</sup>C-bus evaluation board for low-voltage, low-power ICs & software. (A fuller description of the OM527 evaluation board is included in this Data Handbook. See relevant section for details). This board is available from Philips Semiconductors.

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### **I<sup>2</sup>C-BUS DEVELOPMENT TOOLS FOR 80C51-BASED SYSTEMS**

#### **PDS51**

A board-level, full featured, 12 MHz in-circuit emulator, providing complete access to the internal registers and full execution control without consuming chip resources. This means that the microcontroller in the target system can be replaced with the PDS51, enabling the target system to be easily run, monitored and debugged without any changes to code or hardware.

### **I<sup>2</sup>C-BUS DEVELOPMENT TOOLS FOR 68000-BASED SYSTEMS**

#### **OM4160**

Microcore-1 demonstration/evaluation board: SCC68070, 128K EPROM, 512K DRAM, I<sup>2</sup>C, RS-232C, VSC SCC66470, resident monitor.

#### **OM4160/3**

Microcore-3 demonstration/evaluation board: 128K EPROM, 64K SRAM, I<sup>2</sup>C, RS-232C, 40 I/O (inc. 8051-compatible bus), resident monitor.

#### **OM4160/3QFP**

Microcore-3 demonstration/evaluation board for 9XC101 (QFP80 package).