Data acquisition controller interfaces ADCs to 8-bit micros

All the functions required for intelligent data acquisition and monitoring are contained on the CY600 analog/ASCII data acquisition controller, says its manufacturer, Cybernetic Micro Systems. The controller is typically placed between an analog-to-digital converter of up to 16 bits and an 8-bit host computer. Programmed by the user, the CY600 will scan the A/D signals, test for the specified conditions, and inform the host when the conditions are met, freeing the host system for other tasks.

The CY600 consists of two channel buffers which hold the instructions and conditions to be monitored, and six 16-bit-wide registers per channel which hold constants, values from the A/D, and the results of arithmetic computations. Each channel buffer can access any of the analog signals and perform specified tasks, so the CY600 can be testing for several conditions by using different instructions in each channel. By adding an 8156 memory and I/O expansion chip to the CY600, the number of channel buffers can be increased to four, with larger buffers per channel, and the number of registers per channel can be increased to eleven.

The CY600 commands consist of signal selections, A/D conversion controls, arithmetic operators (+, -, *, /), and conditional tests (<, =, >). Arithmetic expressions combine the basic functions using register contents and constant values and may take a form such as F0: A*X + 5 + (Y - Z) < CI, which performs the computation, stores the result in the F register of channel zero, and then compares the result to the contents of the C register of channel one (cross-channel correlation). If the condition fails, the CY600 continues scanning the channels. If the condition passes, the CY600 interrupts the host, and the host may then query the CY600 to determine the cause of the interrupt.

The CY600 is a 40-pin, five-volt NMOS device, available from stock, at $125 (singles) or $60 (100s).

Reader Service Number 27

Board adds floating-point capability to MC68000s

The SKYFFP is a hardware floating-point processor designed for MC68000 microcomputers running on the Multibus or VME-bus. According to its manufacturer, Sky Computers, the single-card processor can perform a three-microsecond floating-point add/subtract/multiply on 32-bit single-precision data, and a 12-microsecond floating-point add/subtract/multiply on 64-bit double-precision data.

The SKYFFP performs square root, logarithmic, and trigonometric functions as well as the basic operations. It is designed to be completely transparent to the user, says Sky, and requires no modification whatsoever to existing Fortran, Pascal, or C programs. Sky supplies a set of run-time modules to replace existing software emulation subroutines, which take up to 300 microseconds to perform even basic floating-point operations, according to the company. The SKYFFP can perform these operations in 20 to 45 microseconds of total system time, including overhead. This total time depends largely on the speed of the MC68000 processor, its associated memory, and other system variables. For even faster operation, the compiler can generate code which will directly invoke the SKYFFP and thereby eliminate most of the overhead associated with a subroutine call to the run-time module.

The SKYFFP also offers programmability—users can download their own microcoded special functions to the SKYFFP for high-speed calculation. This is accomplished with a single call.

The SKYFFP is available immediately, and is priced at $890 in 500-unit quantities.

Reader Service Number 28

Software brings CAD capability to microcomputers

A two-dimensional computer-aided drafting and design package that runs on 8-bit and 16-bit microcomputers under CP/M-80, CP/M-86, or MSDOS/PCDOS, AutoCAD is suitable for applications such as architectural drafting, mechanical design, and PC board design, says developer Autodesk.

Systems currently supported include CP/M-80 machines with the Scion Microangelo graphics subsystem and optional lightpen, the Victor 9000 with 256K RAM and optional Sun-Flex touch pen, and the IBM Personal Computer with 128K RAM and monochrome and color graphics cards. All systems support Summagraphics and Houston Instruments digitizers and the complete range of Hewlett-Packard and Houston Instruments plotters. The package is being installed on other machines.

AutoCAD acts like a word processor for drawings, according to Autodesk. It lets the user make drawings from simple components such as lines (of any width), circles, arcs, and solid-filled areas. Drawings may be created through keyboard commands, or with a lightpen and on-screen menu, or from existing paper drawings via a digitizing tablet. Editing commands allow objects to be moved, copied, modified, erased, rotated, and scaled vertically and horizontally. Repetitive patterns such as representations of brick walls or memory arrays can be generated automatically. A bidirectional zoom facility allows drawings to be worked on at any level of detail.

AutoCAD, complete with drivers for all currently supported devices, is available for $1000.

Readers Service Number 29

Multibus extension expands addressability to up to 16M bytes

The iLBX, a local bus extension to Intel's Multibus, allows a microprocessor to logically address up to 16M bytes of local system memory at very high speeds.

The iLBX is compatible with, and uses the auxiliary (P2) connector of, the existing Multibus connector layout on-board-level products. According to Intel, it is designed to serve as a high-speed, high-bandwidth processor-to-memory execution bus for use with 8- or 16-bit single-board computers and with high-density memory products. The iLBX supports eight-bit data transfer at 9.5M bytes per second and 16-bit at 19M bytes per second.

The iLBX bus architecture provides a direct specialized link between a single-board computer and up to four iLBX-compatible memory boards. Because the iLBX is a standardized extension of the CPU-to-memory bus, it provides the ability to configure "virtual modules" and yet maintain high performance, according to Intel.

The company is supplying free iLBX data sheets and a comprehensive Multibus data book that includes information on the iLBX bus. A full iLBX bus specification is available for a nominal charge.

Reader Service Number 30

Sprint 68 microcomputer

The Sprint 68 microcomputer is based on the iLBX from Intel. It is designed to be used as an 8M-byte memory interface for 68000 processor-based systems. The system features an iLBX-compatible expansion bus, which supports up to two iLBX-compatible expansion boards, and a memory interface that supports up to 16M bytes of memory. The Sprint 68 is designed to be used as a low-cost, high-performance processor for applications requiring fast data transfer and memory access.

READER SERVICE NUMBER 7

Microcomputer development system

The WINTEK Microcomputer Development System (MDS) is a complete development system for the 68000 microprocessor. The MDS includes a 68000 MPU, a serial I/O, 48K RAM, dual 8" drives, WIZRD multitasking DOS, editor, assembler, 12K BASIC, and all for $3995.

OPTIONS:
C, PL/W, PASCAL, FORTRAN, EROM programmer, analog I/O, parallel I/O, 488 GPIB interface, CMOS RAM/battery, power fail detect/power on reset.

WINTEK Microcomputer Development System

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