

Arm Master Processor Board

- ARM-7 32-bit processor
- External 8-bit data bus
- 32-bit Parallel I/O
- FPGA for special hardware interfaces
- 10/100Base T Network Interface
- Two RS-232/422/485 Serial ports
- Optoisolated Serial Ports
- Option Switches
- 4Mbyte Flash Program Memory
- 16Mbyte SDRAM Data memory
- 32K non-volatile memory
- Alarm relay interface
- JTAG emulator connection



This board uses an ARM-based processor subsystem to support two main types of application:

- Standalone applications using the on-board parallel I/O, up to two serial ports and the network interface.
- System CPU applications where off-board I/O is accessed via the 8-bit expansion bus.

The heart of the board is the NetSilicon NET/ARM+50 processor, which provides all the key functions. An expansion bus connector allows access to up to 128K of 8-bit locations, partitioned as 64K "memory" and 64K I/O. This expansion bus operates with 5V logic levels (3V3 option may be available to special order).

Two electrically isolated serial ports provide RS-232/RS-422/RS-485 capability, including a full set of modem control signals on the RS-232 interface.

Two open collector outputs can be used to switch external circuitry; typically alarm or status relays.

32 bits of 3.3V I/O are available on a separate 40-way connector. 16 bits are connected directly to input ports on the processor, while 16 bits of programmable I/O are generated within an FPGA. This device may be programmed to provide alternative hardware functions - for example special input or output processing. There is an on-board 8-bit link between the FPGA and the processor I/O.

A number of LED indicators at the front of the board show the status of the network link, and two indicators may be driven directly by the processor to signal software status. There are also 16 option switches accessible from software to facilitate simple selection of options.

Software development is facilitated by a connector for a JTAG emulator.

Arm Master Processor Board (cont.)

Specification	
Physical:	Extended Single Eurocard, 100 x 220mm Optional 8HP front panel to accept serial connectors
Power:	5V d.c. ± 5% 1000mA maximum
Processor:	Net/Arm+50 processor with 100BaseT MAC and peripherals 4Mbyte flash memory (32-bit wide) 16Mbyte SDRAM (32-bit wide) 32Kbyte FRAM or EEPROM non-volatile memory (8-bit wide)
Connectors:	RJ-45 network connection 10-way IDC plugs for serial - if used with standard ribbon cables give the following options: a. PC-compatible RS-232 port on 9-D plug b. SA-Bus compatible RS-422/485 port with transmit clock on 9-D socket. DIN41612 Type C (64-way) for expansion bus and power input 4-way 0.156" pitch Molex for power input 40-way IDC plug for I/O 4-way 0.1" pitch Molex header for alarm/relay drives 14-way IDC for JTAG emulator
Network:	10/100 BaseT on standard RJ-45 connector. Status LEDs on board
Serial:	Two full-featured serial ports implemented, each with individual electrical isolation using optoisolators and individual on-board d.c. to d.c. converters. Nominal 50V isolation.
RS-232:	Full PC-compatible hardware functionality - includes modem control signals. Link options for transmit/receive clocks.
RS-422/485:	Transmit data enabled by RTS or on-board link. One further output signal, linkable as transmit clock, receive clock, DTR. Receive data. One further input signal, linkable as transmit clock, receive clock, CD, DSR. Receive signals have link-enabled termination/biasing networks.
DIP Switch:	Two 8-way DIP switches, accessible through panel; can be read by software.
Expansion Bus:	5V TTL levels; implements "traditional" 8-bit processor bus with 16 address lines, memory select and I/O select. Many options programmable by software.
On-board/ I/O:	All 3V3 logic levels with 47K pullups (removable for I/O signals). 16 bits direct to Net/Arm+50 ports G, H (input only). 16 bits from FPGA - programmable as input or output 8 bit connection between FPGA and Port F (not available externally) FPGA may be reprogrammed to provide special I/O functions
Support:	Modified version of NetSilicon BSP available
Selection Guide	
DDS0401-01	Fully populated processor board, including network status LEDs, front panel, RS- 422/485 optimised serial connectors.