Aug.,2000

ML671000 Program Development Support

ML671000 CPU BOARD

Functional Overview

The ML671000 CPU board is for use in debugging embedded user application systems to run on the ML671000, Oki Electric's high-performance 32-bit single-chip microcontroller. The complete debugging environment includes the ARM Software Development Toolkit(SDT2.50) from ARM Limited, the Oki Electric ARM Debug Interface(ADI) board, and Multi-ICE from ARM Limited.

In addition to the CPU (ML671000), the board replaces the internal program ROM with rewritable emulation memory (RAM) and Flash memory, allowing the developer to debug without the target memory connected.

A built-in debugging monitor permits debugging from a personal computer host.

Hardware Overview

Microcontroller	ML671000
Control interfaces	JTAG and RS-232C
Power supply jacks	Input voltage of +5 V DC (+/-5%)
Operating voltage	+3.3 V DC (+/-5%)
Operating frequency	48MHz(12MHz input boosted with PLL(x4) for USB) 24MHz(12MHz input boosted with PLL(x2) except for USB)
Data memory	4 KB (ML671000 internal RAM)
Emulation memory	1MB (Two external 16-bit SRAMs of 256 KB each)
Flash memory	256KB (Two external 16-bit Flash chips of 64 KB each, part reserved for Angel software)
CPLD	For use by memory mapped control circuits
JTAG interface	(CNJ) For connecting Oki Electric ADI board or ARM Multi-ICE
USB interface	One USB (B type connector)
RS-232C interface	Two UART (equal to 16550A x 1, UART x1)
User interface	User interface(CNU1 to CNU4) Target connectors (Flexible user cable available as options)
External interrupt switches	nEFIQ and EIR0
Operating mode switch	Choice of Remote or Angel modes
Clock input select switch	Choice of Internal or External clocks
Other	Two indicators (POWER and ANGEL)

Accessories

Standard accessories	Power cable, RS-232C cable, ML671000 CPU board user's manual, ARM Software Development Support Toolkit v2.5 license for 60 days
Options	128-pin flexible cables, 128-pin TQPACK, interface board, USB cable

Debugging Configuration

The onboard Flash memory ships with an ML671000 debugging monitor from Angel, so the simplest configuration involves simply connecting the ML671000 CPU board to the development host with an RS-232C cable.

The JTAG interface permits connection of an Oki Electric ARM Debug Interface(ADI) board or ARM Multi-ICE for acomplete remote debugging system.

Figures 1 and 2 illustrate these two configurations.

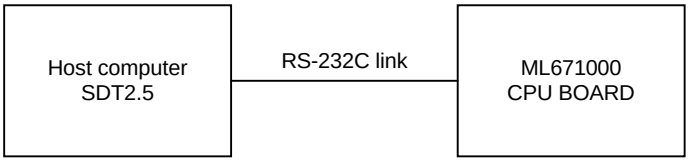

Figure 1. Angel Debugging System

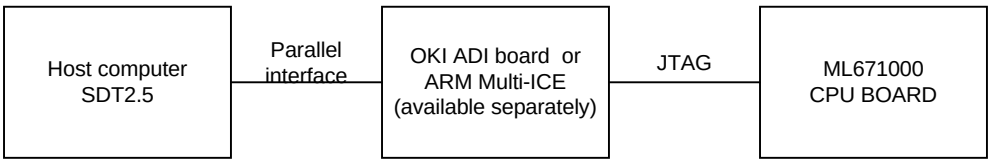

Figure 2. Remote Debugging System

Board Layout

Figure 3 shows the board layout. The four connectors (CNU1 to CNU4) in the middle are for connecting the user application system.

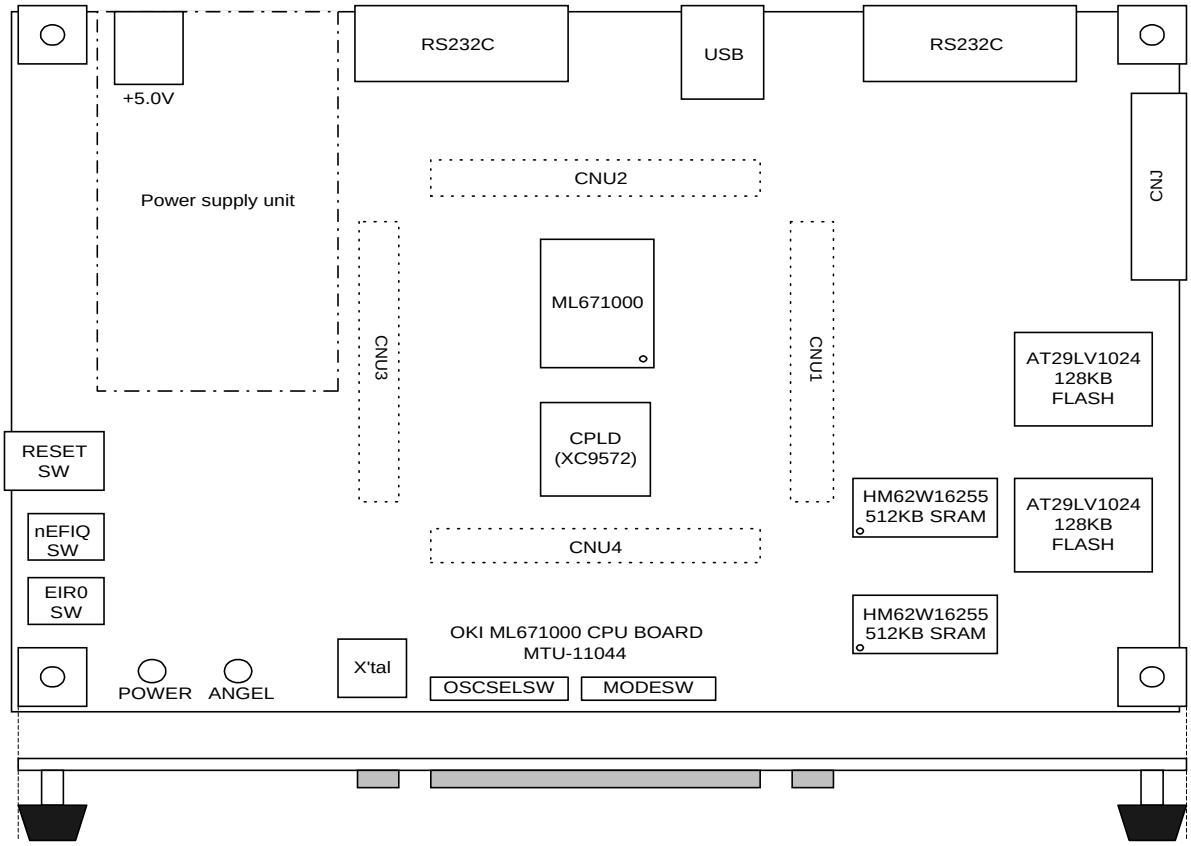

Figure 3. ML671000 CPU Board Layout