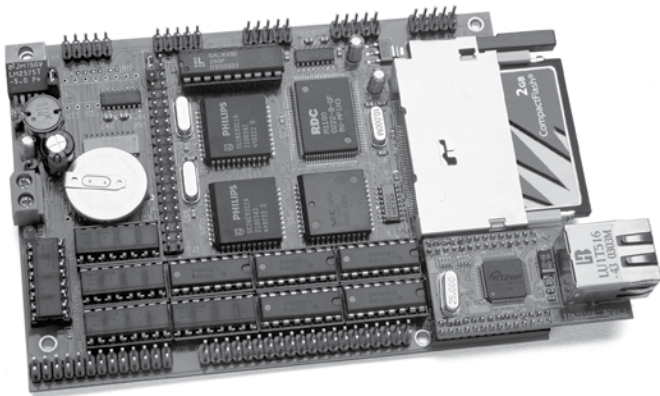




Features:

- 4.9 x 3.5", 50 µA standby, 200 mA normal
- C/C++ programmable, 80 MHz R1100 or 40 MHz Am186ER
- Hardware TCP/IP stack for 100 Base-T Ethernet
- Suitable for protected industrial control applications
- 35 Solenoid Drivers, 20 Opto-coupler inputs
- Flexible hardware-configurable input logic
- Up to 2GB CompactFlash with FAT16 File system support
- 256KW 16-bit Flash, 256KW 16-bit SRAM
- 20+ TTL I/Os, Real-time clock, 512 bytes EE
- 5 RS-232 serial ports, one can be RS485/422

Introduction

The **RL™** is a controller designed for industrial machine control applications. This industrial embedded controller integrates 20 isolated opto-coupler inputs, 35 solenoid drivers, 100 Base-T Ethernet connection, 5 RS232/485/422 serial ports, and CompactFlash mass data storage support on a single PCB. It is ideal for industrial process control, high speed LAN, or remote communication machine control applications.

The **RL** utilizes a high performance C/C++ programmable 186-generation CPU (80MHz R1100 or 40 MHz AM186ER) with a 16-bit external data bus, supporting fast code execution. It has 256KW 16-bit Flash and 256KW 16-bit battery-backed SRAM. Three CPU internal timer/counters can be used to count or time external events, or to generate non-repetitive or variable duty-cycle waveforms as PWM outputs. A real-time clock (DS1337, Dallas) provides clock/calendar with two time-of-day alarms.

A 50-pin CompactFlash interface allows access to mass storage CompactFlash cards (up to 2 GB). TERN C/C++ programmable software packages with FAT16 file system libraries are available.

High-performance Communications

An i2Chip™ Fast Ethernet Module can be installed to provide **100M Base-T** network connectivity, allowing the RL to work with high-bandwidth modern Ethernet networks. This Module implements TCP/IP, UDP, ICMP and ARP with a combination of hardware/software. It has 16KB internal transmit and receiving buffer which is mapped into host processor's direct memory. The host can access the buffer via high speed DMA transfers. The hardware Ethernet module releases internet connectivity and protocol processing from the host processor. It supports 4 independent

stack connections simultaneously at a 4Mbps protocol processing speed. An RJ45 8-pin connector is on-board for connecting to 10/100 Base-T Ethernet network.

Five RS232 serial ports are onboard. The CPU's internal UART is used for remote debugging, but is also available for user application. Two Dual UARTs (SC26C92) provide 4 more UARTs. All UARTs have deep FIFOs to minimize receiver overrun and to reduce interrupt overhead. One RS232 port can be converted to RS485, or RS422.

Protected I/O for Industrial Use

Five power Darlington array chips (ULN2003A) are installed in five DIP sockets, providing a total of **35 high voltage sinking drivers**. Each driver is capable of sinking 350 mA at 50V per line. They can directly drive solenoids, relays, or lights. In place of the ULN2003As, resistor packs or DAC chips (with modification) can be optionally installed to provide TTL I/O or up to 10 analog outputs. A total of **20 opto-couplers** are on-board to provide isolation for high voltage inputs. Furthermore, some control applications need to trigger an event under combined conditions of several sensors/switches. As a result, seven of the 20 opto-couplers are routed to an on-board PAL, allowing flexible hardware-configurable input logic to trigger interrupts. An **additional 20 TTL I/O lines** are available on the J2 pin header, including bi-directional I/Os from the PPI (82C55), multifunctional CPU internal PIOs, and TTL I/Os from the Dual UARTs.

Optional high efficient Switching Regulator (LM2575) provides an external control pin to shutdown 5V and enter µA standby mode, waking-up on an active-low signal. The **RL** requires 8.5V to 12V DC power supply with default linear regulator, or up to 30V DC power input with switching regulator without generating excessive heat.

Two versions of **RL** are available: the **RL80** is based on the 80 MHz R1100, and **RL40** is based on 40 MHz Am186ER.

Ordering Information

RL80 or RL40	\$199/\$169/\$139/\$79	Qty 1/50/100/1K+
---------------------	-------------------------------	-------------------------

Includes: 80/40MHz CPU, 5 RS232, 3 timers, 82C55, watchdog timer, EE, 256KW Flash, 64KW SRAM, 20 TTL I/Os, 35 solenoid drivers, and 20 opto-couplers.

NOT including add-on options. OEM option discounts available.

Add-on Options:

- | | |
|---|---------|
| 1) SRAM 256KW..... | \$20 |
| 2) Real-time clock (RTC1337) and battery..... | \$20 |
| 3) CompactFlash interface | \$20 |
| 4) Switching regulator (SR)..... | \$20 |
| 5) UART driver, a) RS485, b)RS422..... | \$10/20 |
| 6) i2chip 100 Base-T Ethernet Module..... | \$30 |

Typical Order Example:

80 MHz RL™, with 4 RS232 and one RS485
 RL80 + 5a = \$199 + \$10 = \$209

