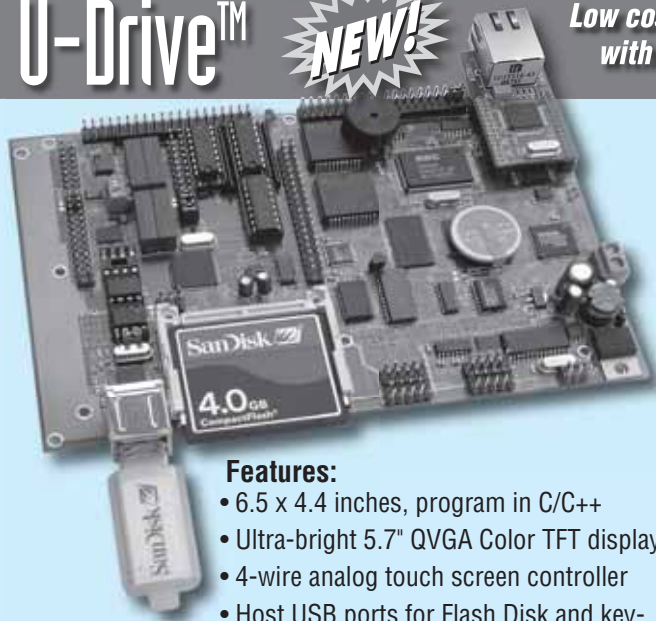


# U-Drive™



**Low cost, C programmable user interface, QVGA Industrial controller with ADC/DAC, CAN, OPTO, Ethernet, CompactFlash and Host USB**



### Features:

- 6.5 x 4.4 inches, program in C/C++
- Ultra-bright 5.7" QVGA Color TFT display
- 4-wire analog touch screen controller
- Host USB ports for Flash Disk and keyboard/mouse
- 256 KW SRAM, 256 KW Flash, 512 bytes EEPROM
- 30+ TTL I/O, 3 16-bit timer/counters, RTC, Battery
- 4 mechanical relays, 4 Opto-coupler inputs.
- 14+ solenoid drivers or high voltage inputs (0-30V DC)
- 2 ch. 16-bit ADCs, 16 ch. 24-bit ADCs
- Precision reference and on-board temperature sensor
- 8 ch. 16-bit DACs, 4 ch. 12-bit DAC
- Controller Area Network (CAN2.0B) port
- 4 RS232/and 2 RS485 serial ports
- 10/100 Base-T Ethernet with hardware TCP/IP stack
- Switching regulator, 50 mA standby, 160 mA at 12V
- CompactFlash with Windows compatible file system support

The **U-Drive (UD)** is a very low-cost industrial HMI controller, ideal for OEM applications requiring a user interface. The ultra-bright, wide viewing angle active TFT color display with touchscreen is attractive, can be used in outdoor applications, and easy to program. Other peripherals makes this board a powerful and comprehensive industrial user interface and control solution.

### Display

The onboard LCD controller (S1D13075, EPSON) has internal 80KB image buffer, supporting QVGA color graphic LCDs with 320x240 pixels. The integrated TFT display is ultra-bright (rated at 400+ nits). An accurate touch screen controller (ADS7846) supports 4-wire resistive touch screen. All components are installed on single PCB, mounted on the backside of the QVGA TFT for easy integration into user applications. Comprehensive, user-friendly software libraries and samples are provided. User can easily design their custom functions keys, text, logo, and graphics. Supported by the CompactFlash-based file system (up to 2 GB), up to 10 user-designed screens can be displayed per second via DMA transfer. Touch-screen and mounting bezel are also optionally available for this display.

### USB

A Host USB controller can be installed to provide two Host USB ports. Port 1 can interface to USB keyboard/mouse, allowing a flexible mechanism for accepting user input in addition to touchscreen. Port 2 supports a hot-removable USB flash disk, using a simple command set to manipulate a FAT filesystem format. No other USB specific firmware programming is required on the controller side.

### Communications

A Controller Area Network (CAN) controller (SJA1000, 20 MHz clock) is available. It supports network baud rates up to 1M-bit per second. Software drivers allow access to all CAN controller registers, as well as packet buffering software layer.

A Fast Ethernet Module can be installed to provide 10/100 Base-T network connectivity. This Ethernet module has a hardware LSI TCP/IP stack, implementing TCP/IP, UDP, ICMP and ARP support in hardware. Socket-based software drivers show the U-Drive to be used as a web or TCP server.

Also available are 4x RS232 and 2x RS485 serial ports.

### Industrial I/O

There are 30+ TTL I/Os, 4 mechanical relays (200V, 0.5 Amp.), 4 opto-couplers and 14 solenoid drivers (sinking/sourcing 350 mA at 50V each).

The solenoid drivers can be hardware configured to be high voltage (0-30V) inputs. Three 16-bit CPU internal timer/counters support timing and external counting.

There are up to a total of 28 ADC inputs and 12 DAC outputs:

4 ch.16-bit parallel ADC chip (AD7655, 1 MHz, 0-5V), 24-bit ADC (LTC2448, 5KHz 0-1.25V) configurable for 8 ch. differential or 16 ch. single-ended input channels. A 16-bit ADC (ADS8344, 10KHz 0-5V) provides 8 ch. analog inputs. Eight ch. 16-bit DACs (LTC2600, 0-5V, 10 KHz), and four ch. 12-bit parallel DAC (DA7625, 200 KHz, 0-2.5V) are available.

### Ordering Information

**UD \$479/\$419/\$379 Qty 1/50/100+**

Includes: 186 CPU 40MHz, PPIx2, 256 KW Flash, 256KW SRAM, EE, 2 RS232, solenoid drivers, QVGA TFT display.

NOT including options. OEM option discounts available.

### Add-on Options:

- |  |        |
|--|--------|
| 1) 16 ch. 24-bit ADC(LTC2448).....                   | \$40   |
| 2) 4 ch. 16-bit ADC, 1MHz (AD7655).....              | \$40   |
| 3) 8 ch. 16-bit ADC (ADS8344).....                   | \$30   |
| 4) 4 ch. 12-bit DAC, 200 KHz (DA7625).....           | \$40   |
| 5) 8 ch. 16-bit DAC (LTC2600).....                   | \$40   |
| 6) Real-time clock (RTC) and battery.....            | \$20   |
| 7) CompactFlash interface .....                      | \$20   |
| 8) USB Host Port1 and Port2.....                     | \$50   |
| 9) QUART (2 RS232+2 RS485).....                      | \$40   |
| 10) 10/100 Base-T hardware TCP/IP Ethernet.....      | \$30   |
| 11) CAN controller with transceiver .....            | \$40   |
| 12) Switching Regulator .....                        | \$20   |
| 13) Reed Relay, up to 4 (one for TFT backlight)..... | \$10x4 |
| 14) 4 Opto-couplers.....                             | \$20   |
| 15) Touchscreen .....                                | \$40   |
| 16) Bezel.....                                       | \$50   |

### Typical Order Example:

**UD +CompactFlash+Ethernet > UD +7+10 = \$479+\$20+\$30= \$529**



**1950 Fifth Street, Davis, CA 95616 USA**  
**Tel: 530-758-0180 • Fax: 530-758-0181**

sales@tern.com

http://www.tern.com