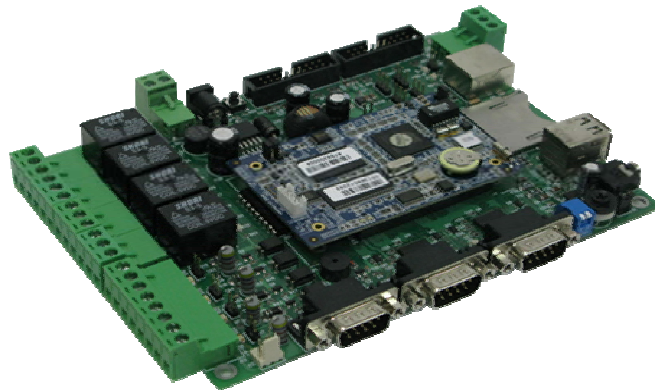


## **EX-9486-L-DIO(OEM/ODM) Example of Linux(ARM 9) Embedded Board (TCP/IP Remote DI/O Controller)**



Standard TCP/IP network communication interface

RS-232 / RS-485 remote devices data transfer communication

4 Relay output control

4 Photo isolate digital input control(2000Vrms protection)

Built in Embedded Linux OS Kernel 2.6.x and File System

Built in Web Server

Built in MySQL Database

Industrial specification 400Mhz ARM9 32-bit

RSIC(low power consumption)

Tool Chain for application software develop of Linux and Windows



**Feature: EX-9486-L-DIO** which is ARM9 Embedded digital signal controller on ethernet/RS485 network of ARM9 , to proceed and control digital input and digital output, used in switches control or monitoring; with TCP/IP standard interface and Web Server, it can be developed the remote function of monitoring and control from far end, and also provided RS-232 and RS-485 serial communication interface, it can be connected with different kind of devices or instrument cluster .

### **EX-9486-L-DIO Easy Development for the Application System**

EX-9486-L-DIO use ATMEL AT9G20 400MHz ARM9 RISC processor, with 64MB SDRAM and 128 MB Flash to be the core of system, built in Embedded Linux OS kernel 2.6.x and File system, and provided abundant communication, control interface and corresponding drivers.

Under Linux or Windows operation systems, users via the built in C/C++ Compiler and the software developed tool of Lib can proceed the design of application software and obtained related technical support to complete the system programming and development.

### **TCP/IP Network Communication & Web Server**

EX-9486-L-DIO have one set of high speed Ethernet Interface and Web Server built in, user can easily develop a set of remote controller system through the web to proceed monitoring and control. USB Interface of EX-9486-L-DIO can be connected the 802.11 Wi-Fi or 3G wireless interface to make the TCP/IP communication to completely.

### **High speed serial interface**

EX-9486-L-DIO has 3 RS232 and 1 RS485 COM port, the highest baud rate of each COM port goes to 921.6Kbps which to make users connecting any kind of devices, instrument cluster and machine for the monitoring control.

### **Fully Digital Signal Control Interface**

EX-9486-L-DIO with 3 kinds of Digital Signal Control interfaces of digital signal control. Isolate the signal of digital input control which may connect with different kind of switched, buttons and sensors to proceed real time monitoring; Relay output control which can normally for switches controller, even can directly to control or switching the devices or instrument cluster. GPIO can make users define for Input or Output control.

### **Industrial Rackmount/Wallmount design**

The design of Rackmount and Wallmount that to meet the requirement of using and setting up on many harsh and environmental maintainness, Voltage input range 9~40V; standard Terminal Block & Connector for easily to make wiring and construction.

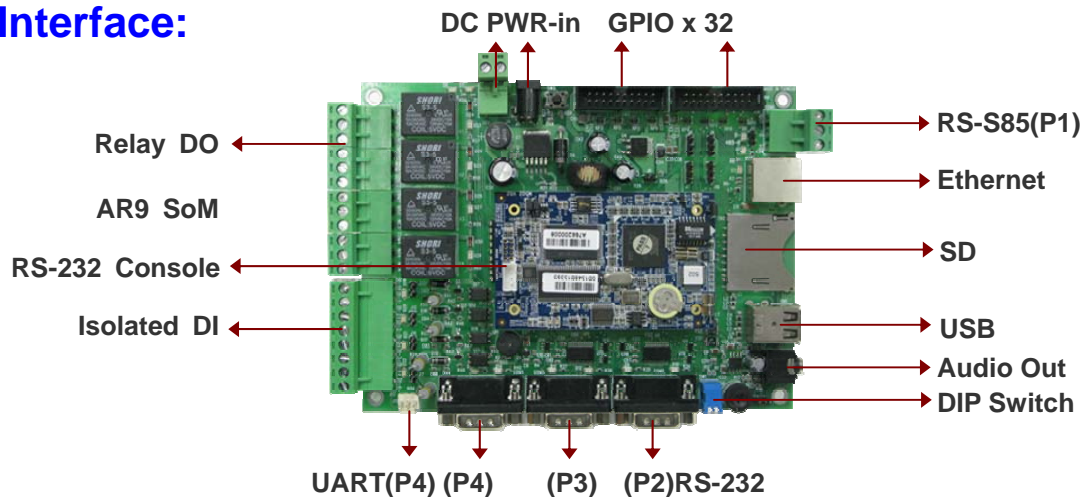
### Built-in MySQL Database

SQL is the most popular database to be used. EX-9486-L-DIO Built-in MySQL Database as a Data Exchange Platform, not only supporting data storage and also easily to remote control anytime, anywhere by development of activities Web page.

### 32GB Data Storage Expandable

Users can arrange database or Web page proceeding mass storage data collection via SD slot to expand as 2GB data capacity.

### Main Interface:





## Hardware:

### CPU/Memory:

- ▶ CPU : ATMEL AT9G20 400MHz ARM9 @400MHz
- ▶ Memory : 64MB SDRAM, 128MB NAND FLASH

### Digital Output:

- ▶ 4 DO
- ▶ Relay: N.O./ N.C./ COM
- ▶ 240VAC@5A / 24VDC@5A
- ▶ 5.00mm Terminal Block

### Digital Input:

- ▶ 4 DI
- ▶ 5~24VDC
- ▶ 2000Vrms Isolation
- ▶ Wet/ Dry (Selectable by jumper)
- ▶ 5.00mm Terminal Block

### GPIO:

- ▶ 32 points Input/ Output Selectable
- ▶ 3.3 VDC CMOS
- ▶ 2.54mm 10x2 pin grid

### Network Interface:

- ▶ RJ-45 connector x 1
- ▶ 10/100BaseT (Ethernet)

### TTY (Serial) Ports:

- ▶ RS485 X 1
- ▶ P1 : Data+, Data-, GND
- ▶ 5.00mm Terminal Block

### RS232 x3:

- ▶ P2 : TxD, RxD, RTS,CTS, DTR, DSR, DCD,GND
- ▶ P3 : TxD, RxD, GND
- ▶ P4 : TxD, RxD, GND
- ▶ DB9 male

## Management Setting:

- ▶ Utility(window)
- ▶ Console: TCP/IP Network(Web, Telnet) & Serial port
- ▶ LED: Power Supply, Digital Signal, TCP/IP, Serial
- ▶ Dimension:160 x 125 x 20 mm
- ▶ Weight : 240gw

## Others:

- ▶ Real Time Clock x 1 Watchdog
- ▶ Buzzer x 1
- ▶ 9~40VDC
- ▶ Power Connector: 5.0mm Terminal Block
- ▶ Power Consumption: 1.2A@12VDC
- ▶ Operating Temperature: 0~50
- ▶ Humidity: 20%~80% RHG

## Software:

### General:

- ▶ OS: Linux kernel 2.6.29
- ▶ Boot Loader: U-Boot 1.3.4
- File systems: JFFS2, EXT2/EXT3, VFAT/FAT, NFS

### Protocol stack:

- ▶ IPv4, ICMP, ARP, DHCP, NTP, TCP, UDP, FTP, Telnet, HTTP, PPP, PPPoE, CHAP, PAP, SMTP, SNMP V1/V2, SSL, SSH 1.0/2.0

### Package Management & System Administration

- ▶ bash, busybox, sysvinit, wget, ipkg, psmics, vsftpd, ssh iptable, ppp, wireless\_tools, usbutils, lighttpd, Topsgcc utility, til-linux-mount/umount, procps (for webmin),ipkg, webmin

### Daemons:

- ▶ Web server(lighttpd), telnetd , ftpd(vsftp),



UART port:

- ▶ P4 x1 : TxD, RxD, RTS,CTS,GND (common with RS232 P4)
- ▶ 3pin 2.54mm wafer male

TTY (Serial) Port Parameters:

- ▶ Baud Rate : 300 ~ 921,600 bps
- ▶ Parity : None, Even, Odd, Mark, Space
- ▶ Data Bits : 5, 6, 7, 8
- ▶ Stop Bit : 1, 1.5, 2 bits
- ▶ Flow Control : RTS/CTS, XON/XOFF, None(RS-232 Only)

Console:

- ▶ RS-232 (TxD, RxD, GND)  
115,200 bps, VT-100  
4-pin 2.00mm wafer male

USB ports:

- ▶ USB port x 2
- ▶ USB 2.0 compliant

Mass Storage:

- ▶ One SD 1.0 compliant socket inside

syslog/klogd, ssh, amgrd (Topsccc broadcast search daemon)

Linux/Windows(tool chain):

- ▶ GCC: C/C++ PC cross compiler for Linux
- ▶ GLIBC: POSIX Library

Device Drivers:

- ▶ SD/MMC, UART, Real Time Clock, Buzzer, Ethernet, Digital I/O, Watchdog Timer
- ▶ Real Time Clock: Ricoh RS5C372
- ▶ EEPROM: ATMEL AT24C16 and compatibles

USB Driver for Expandable:

- ▶ Flash thumb disk
- ▶ IEEE-802.11b/g WiFi adapter (Ralink rt73usb, Ralink rt2500usb, Realtek RTL8187, ZyDAS zd1211rw)
- ▶ 10/100Mbps Fast Ethernet adapter (RT8150)
- ▶ RS-232 adapter (prolific PL-2303)
- ▶ ISDN Modem