

# Linux-based Arm9 Programmable Automation Controller

# PAC-4000



## Features

- ATMEL AT91SAM9G20 400MHz CPU w/ MMU
- Linux kernel 2.6.29 with file system
- 64MB SDRAM and 256MB NAND Flash
- 2MB DataFlash for system recovery
- On-board real-time clock
- 2 x 10/100Mbps Ethernet ports
- 4 x RS-232 ports, 921.6Kbps max.
- 2 x 1500Vrms isolated RS-485 ports, with auto direction control
- 2 x USB 2.0 Hosts supporting full speed of 12Mbps
- Small form factor (W x H x D): 45 x 130 x 102.5mm

## ■ H/W Specifications

### CPU / Memory

- CPU: ATMEL AT91SAM9G20 400MHz w/ MMU
- Memory: 64MB SDRAM, 256MB NAND Flash
- DataFlash@: 2MB, for system backup

### Network Interface

- No. of Ports: 2
- Type: 10/100Mbps Ethernet, RJ45 connector
- Protection: 1.5KV magnetic isolation

### Serial Ports

- 2 x RS-485 or RS-232 (Port 1 and Port 2)
- 2 x RS-232 (Port 3 and Port 4)
- Protection: 15KV ESD for RS-232; 1500Vrms isolation and 15KV ESD for RS-485
- Connector: RJ45 for RS-232; Terminal Block for RS-485

### Serial Port Parameters

- Baud Rate: Up to 921.6Kbps
- Parity: None, Even, Odd, Mark, Space
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Flow Control: RTS / CTS, XON / XOFF, None
- RS-485 Direction Control: Auto, by hardware

### USB Ports

- Host Ports: 2, USB 2.0 compliant
- Client Port: 1, reserved
- Speed: Supports low-speed (1.5Mbps) and full-speed (12Mbps)

### SD Socket (Secure Digital Card)

- 1 x Micro-SD socket (at bottom side)
- SD 2.0 Compliant, support SDHC

### General

- Watchdog Timer: Yes
- Real-Time Clock (RTC): Yes, with backup battery
- Buzzer: Yes
- Power Input: +9V~+48VDC
- Power Consumption: 12VDC@300mA
- Dimensions (W x H x D): 45 x 130 x 102.5mm (1.77x5.12x4.03in)
- Operating Temperature: 0~70°C (32~158°F)
- Regulation: CE Class A, FCC Class A

## ■ S/W Specifications

### General

- OS: Linux, kernel 2.6.29
- Boot Loader: U-Boot
- File Systems: UBI, JFFS2, ETX2 / ETX3, VFAT / FAT, NFS
- Internet Protocol: TCP, UDP, IPv4, SNMP V1 / V2 / V3, ICMP, ARP, HTTP, CHAP, PAP, DHCP, NTP, NFS, SMTP, TELNET, FTP, TFTP, PPP, PPPoE
- Internet Security: OpenVPN, iptables

### Pre-installed Utilities

- bash, busybox, sysvinit, wget, ipkg, procps (for webmin), psmics, lighttpd, vsftpd, iptables, ppp, ssh, wireless\_tools, util-linux-mount / umount, usbutils, Artila utility and more

### Daemons Started by Default

- ssh (secured shell) with sftp
- syslog / klogd (system and kernel log)
- telnet server (disable root permission in /etc/security)
- ftp server (vsftp)
- web server (lighttpd)
- amgrd (Artila broadcast search daemon)

### Package Management & System Administration

- Supports ipkg to manage the package installation, upgrade and removal
- Supports webmin for web-based system administration

### Toolchain for Linux

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

### USB Host Drivers (Could Be Customized)

- Generic Flash drive
- RS-232 adapters
- WiFi dongles

## ■ Ordering Information

### PAC-4000

- Linux-based Arm9 Programmable Automation Controller

### CB-RJ45F9-150 (91-R45F9-150)

- Serial Cable (RJ45 to DB9 Female, 150cm)

### CB-PHDF9-050 (91-PHDF9-050)

- Console Cable (Wafer Box to DB9 Female, 50cm)

### PWR-12V-1A (31-62100-000)

- 110~240VAC to 12VDC 1A Power Adapter