Embedded Computers

DA-710 Series

x86 embedded computers with 2 serial ports, quad LANs, VGA, 4 DIs, 4 DOs, USB, and 4 peripheral expansion slots

- Intel Celeron M 2.0 GHz processor with 533 MHz FSB
- 1 X 200-pin DDR2 SODIMM socket, supporting DDR2 533 up to 2 GB
- 4 PCI slots for expansion modules
- Quad 10/100/1000 Mbps Ethernet for network redundancy
- 1 CompactFlash socket, 1 IDE, and 2 serial ATA-150 connectors for storage expansion
- 4 USB 2.0 ports for high speed peripherals
- 4 DIs and 4 DOs
- Ready-to-Run Linux or Windows Embedded Standard 2009 platform
- 19-inch rackmount model, 4U high
- Fanless Design
- Dual 100/240 VAC/VDC power input

Overview

The DA-710 computer is based on the Intel x86 processor, supports VGA, and comes with 4 Ethernet ports, 2 RS-232 serial ports, CompactFlash, and USB. The DA-710 comes in a standard 19-inch, 4U high form factor, making it an ideal platform for industrial applications.

The DA-710 comes with 4 PCI slots for inserting expansion modules. Moxa provides a variety of communication modules, including an 8-port RS-232/422/485 module, a 4-port 10/100 Mbps LAN module, an 8-port RS-422/485 module, an 8-port switch module, and a universal PCI expansion module. The friendly modular design gives users the advantage of being able to swap out modules quickly and easily.

The DA-710 runs Linux, or Windows Embedded Standard 2009 (pre-installed), providing a friendly environment for developing sophisticated application software. The great software support that Moxa provides makes the programmer’s job easier, and helps programmers develop bug-free code quickly and at a lower cost.

Appearance

Front View

Rear View

Das Embedded Computers

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### Hardware Specifications

**Computer**
- **CPU:** Intel Celeron M 2.0 GHz processor
- **OS (pre-installed):** Windows Embedded Standard 2009, Linux 2.6
- **System Chipset:** Intel GLE960 + ICH8M
- **BIOS:** 8 Mbit SPI Serial Flash, PCI Plug & Play, ACPI function support
- **FSB:** 533 MHz
- **System Memory:** 1 x 200-pin DDR2 SODIMM socket supporting DDR2 533; up to 2 GB max. (1 GB built-in)
- **CPU:** Intel Celeron M 2.0 GHz processor
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- **USB:** USB 2.0 compliant hosts x 4, type A connector, supports system boot up

**Storage**
- **Built-in:** Onboard industrial DOM to store OS; 1 GB for Linux, 2 GB for XPe
- **Storage Expansion:** CompactFlash socket
- **HDD Support:** 2 x SATA connector, 1 x IDE connector

**Other Peripherals**
- **KB/MS:** 1 PS/2 interface, supports standard PS/2 keyboard and PS/2 mouse

**Display**
- **Graphics Controller:** Integrated Intel graphics media accelerator (GMA X3100)
- **Display Memory:** Dynamic video memory technology
- **Intel Clear Video Technology:** MPEG-2 hardware accelerator, Microsoft DirectX 9
- **Display Interface:** CRT interface for VGA output (DB15 female connector)
- **Resolution:** QXGA maximum with resolution up to 2048 x 1536 at 60 Hz

**Ethernet Interface**
- **LAN:** 4 auto-sensing 10/100/1000 Mbps ports (RJ45)

**Power**

**Serial Interface**
- **Serial Standards:** 2 RS-232 ports (DB9 male)
- **ESD Protection:** 4 KV for all signals

**Serial Communication Parameters**
- **Data Bits:** 5, 6, 7, 8
- **Stop Bits:** 1, 1.5, 2
- **Parity:** None, Even, Odd, Space, Mark
- **Flow Control:** XON/ XOFF
- **Baudrate:** 50 bps to 115.2 Kbps

**Serial Signals**
- **RS-232:** TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND

**Digital Input**
- **Input Channels:** 4, source type
- **Input Voltage:** 0 to 30 VDC
- **Digital Input Levels for Dry Contacts:**
  - Logic level 0: Close to GND
  - Logic level 1: Open
- **Connectors Type:** 6-pin screw terminal block (4 points, DI Source to DI)
- **Isolation:** 4 KV optical isolation

**Digital Output**
- **Output Channels:** 4, sink type
- **Output Current:** Max. 200 mA per channel
- **On-state Voltage:** 24 VDC nominal, open collector to 30 V
- **Connector Type:** 5-pin screw terminal block (4 points, GND)
- **Isolation:** 4 KV optical isolation

**LEDs**
- **System:** Power x 1, Storage x 1
- **LAN:** 100M x 4, 1000M x 4
- **Power Failure:** LED x 2
**Programmable:** LED x 4  
**Module:** Module A x 16, Module B x 16, Module C x 16, Module D x 16  

**Physical Characteristics**  
**Housing:** SECC sheet metal (1 mm)  
**Weight:** 14 kg  
**Dimensions:**  
- Without ears: 400 x 420 x 180 mm (15.75 x 16.54 x 7.09 in)  
- With ears: 400 x 480 x 180 mm (15.75 x 18.90 x 7.09 in)  
**Mounting:** Standard 19-inch rackmount  

**Environmental Limits**  
**Operating Temperature:** -10 to 50°C (14 to 122°F)  
**Operating Humidity:** 5 to 95% RH  
**Storage Temperature:** -20 to 80°C (4 to 176°F)  

**Power Requirements**  
**Input Voltage:** Single or dual inputs, 100 to 240 VAC/VDC auto-ranging, 47 to 63 Hz, terminal block  
**Power Consumption:** 60 W  

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### Software Specifications

#### Linux  
**Distribution:** Debian Lenny 5.0  
**Kernel Version:** 2.6.26  
**Protocol Stack:** TCP, UDP, IPv4, SNMP V1, ICMP, ARP, HTTP, CHAP, PAP, SSH, SSL, DHCP, NTP, NFS, Telnet, FTP, PPP, PPPoe  
**File System:** EXT2 (1G DOM)  
**System Utilities:** bash, busybox, login, telnet, ftp, ssh, openbsd-inetd, apt, apt-utils, dpkg, grub, udev  
**telnetd:** telnet Server daemon  
**ftpd:** FTP server daemon  
**sshd:** secure shell server  
**Apache:** web server daemon, supporting PHP and XML  
**openvpn:** virtual private network service manager  
**iptables:** firewall service manager  
**NAT:** Network Address Translation  
**pppd:** dial in/out over serial port daemon & PPPoE  
**pppoe:** PPP over ethernet  
**tftp/tftpd:** Trivial file transfer protocol client/server  
**snmpd:** snmpd agent daemon  
**usbmnt:** supports USB PnP  
**DHCP Client:** dhcp3-client  
**cron:** to manage regular background processing  
**grep:** NU grep, egrep, and fgrep  
**minicom:** friendly serial communication program  
**watchdog:** software watchdog  
**inetc:** TCP server manager program  

**Application Development Environment:** GNU Make 3.8.1 (GNU make utility to maintain groups of programs)  
**Automatic Configuration Script Builder:** autoconf 2.13  
**gcc:** GNU C compiler  
**g++:** GNU C++ compiler  
**libgcc-dev:** GNU C library (development libraries and headers)  
**Perl:** Practical Extraction and Report Language  
**Vim:** Vi IMproved (enhanced vi editor)  

#### Windows XP Embedded  
**Version:** Windows Embedded Standard 2009  
**System Utilities:** Windows command shell, Telnet, ftp, Wireless Zero Configuration  
**File System:** NTFS  
**Protocol Stack:** DHCP, IPv4, DNS, IPsec, HTTP, TCP, UDP, ICMP, IGMP, ARP, TAPI, TSP, SNMP V2, NTP, ICs, PPP, CHAP, EAP, SNTP, Telnet, FTP, SMTP, PPPoE, PPTP, NetBIOS  
**Telnet Server:** Allows users to connect to Telnet servers from remote computers.  
**IIS Web Server:** Allows you to create and manage Web sites.  
**Terminal Server:** Microsoft Terminal Server client application (mstsc.exe).  
**COM+ Services:** The next evolution of Microsoft Component Object Model (COM) and Microsoft Transaction Server (MTS).  
**Computer Browser Service:** Computer browsing functionality exposed by Windows through Microsoft Networking. Allows a client machine to browse its network neighborhood for available computers exposing file and print sharing services.  
**Disk Management Services:** Support for disk and volume management operations. The component implements a Component Object Model (COM) interface that can be used to query and configure disks and volumes, both basic and dynamic. The component also monitors disk arrivals and removals and other changes in the storage subsystem.  
**Remote Registry Service:** Enables remote users to modify registry settings on this computer.  

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**Regulatory Approvals**  
**EMC:** CE (EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 55024), FCC (Part 15 Subpart B, CISPR 22 Class A, ANSI C63.4)  
**Safety:** UL/cUL (UL 60950-1, CSA C22.2 No. 60950-1-07), CCC  
**Green Product:** RoHS, CrRoHS, WEEE  

**Reliability**  
**Alert Tools:** Built-in buzzer and RTC (real-time clock) with backup lithium battery  
**Automatic Reboot Trigger:** Built-in WDT (watchdog timer) supporting 1-255 time interval levels for system reset, software programmable  

**Warranty**  
**Warranty Period:** 3 years  
**Details:** See www.moxa.com/warranty
Embedded Computers

Package Checklist

1 DA-710 computer
- Ethernet Cable: RJ45 to RJ45 cross-over cable, 100 cm
- Quick Installation Guide (printed)
- Document and Software CD or DVD
- Product Warranty Statement (printed)

Application Development Software:
- Microsoft .Net Framework 2.0 with service pack 2 (CLR and the .NET Framework class library)
- Active Directory Service Interface (ADSI) Core
- Active Template Library (ATL), ASP.NET 2.0
- Certificate Request Client & Certificate
- Autoenrollment (CLR and the .NET Framework class library)
- COM APIs
- Common Control Libraries
- Common File Dialogs
- Direct3D, DirectPlay, DirectShow and Direct show filters
- Distributed Transaction Coordinator (MSDTC)
- Enhanced Write Filter (Redirect disk write operations to volatile (RAM) or non-volatile (disk) storage)
- Event Log, Internet Explorer
- Mapi32 Libraries
- Message Queuing (MSMQ) Core
- Microsoft Visual C++ Run Time Libraries
- Power Management dynamic-link library
- Registry Editor
- RPC
- Smart Card Cryptographic Service Providers
- USB 2.0 core drivers compliant with USB .95 or 1.0
- Windows API, Media Player 10, Script Engines, and WMI

Available Models
DA-710-XPE: x86-based rackmount embedded computer with 2 RS-232 ports, 4 LANs, 4 peripheral expansion slots, 4 DIs, 4 DOs, VGA, CompactFlash, USB, Windows Embedded Standard 2009
DA-710-LX: x86-based rackmount embedded computer with 2 RS-232 ports, 4 LANs, 4 peripheral expansion slots, 4 DIs, 4 DOs, VGA, CompactFlash, USB, Linux 2.6

Expansion Modules (can be purchased separately)
DA-SP08-I-DB: 8-port RS-232/422/485 serial module with DB9 connector and digital isolation
DA-SP08-DB: 8-port RS-232/422/485 serial module with DB9 connector
DA-SP08-I-TB: 8-port RS-232/422/485 serial module with terminal block connector and digital isolation
DA-SP38-I-TB: 8-port RS-422/485 serial module with terminal block connector and digital isolation
DA-SW08-RJ: 8-port 10/100 Mbps unmanaged switch module
DA-LN04-RJ: 4-port 10/100 Mbps LAN module
DA-UPCI-DK: Universal PCI development kit

Ordering Information