Matrix-513   Linux-ready Box Computer

- ATMEL 9G45, 400MHz ARM9 CPU
- 128MB DDR2 RAM, 256MB NAND Flash
- Two 10/100 Mbps Ethernet ports
- Two high-speed USB Hosts, up to 480 Mbps
- One full size mini-PCIe socket inside(USB signal)
- One half size mini-PCIe socket inside(USB signal)
- Four RS-232/422/485 serial ports

Hardware Specifications

CPU/Memory
CPU: ATMEL 400MHz AT91SAM9G45 w/MMU
RAM: 128MB, DDR2
NAND Flash: 256MB
DataFlash® : 2MB, for system backup

Network Interface
Type: Ethernet, 10/100Mbps
No. of ports: two, RJ-45 connector
Protection: 1.5KV magnetic isolation

TTY (Serial) Ports
Type: RS-232/422/485, software select
Connector: DB9 male
Port 1,3,4: TX, RX, RTS, CTS, GND
Port 2: TX, RX, RTS, CTS, DCD, DTR, DSR, GND

USB 2.0 High Speed Interface
Speed: supports 480Mbps high-speed mode
No.of ports: two hosts and one client

Digital IOs
Inputs: two, 2500Vrms opto-isolation
Output: one relay output (30VDC @1A),
supports form A or B (by jumper)

SD Socket
Type: one miniSD socket inside, up to 32GB

Generals
Power input: 9 to 48VDC
Power consumption: 500mA@12VDC, max.
Dimensions (WxHxD): 175x43x103 mm
Operation temperature: 0~70°C
Regulations: CE Class A, FCC Class A

Software Specifications

General
OS: Linux, Kernel 2.6.38
Boot Loader: U-Boot

File Systems
UBI, JFFS2, ETX2/ETX3, VFAT/FAT, NFS, NTFS

Tool Chain for Linux
GCC: C/C++ PC cross compiler
GLIBC: POSIX Library

IPKG Package Management
Supports ipkg to manage the package installation,
upgrade and removal.

Webmin System Administration
Supports webmin for web-based system administration

Platform Features
- Web server (lighttpd)+ PHP 5, Python 2.6
- MySQL 5, server and client
- SQLite 3
- SNMP V1/V2/V3
- Java

USB mini-PCIe Supports
Interface: supports **USB** signals only
Full-size socket: one, suitable for 2G/3G card
Half-size socket: one, suitable for WiFi card
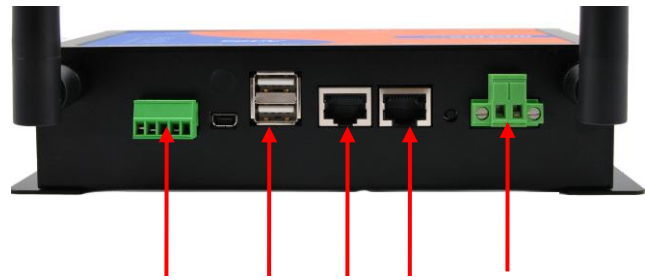**Antenna mounting holes:** three, suitable for mounting
SMA connectors

Matrix-513 Front/Back Views

RS-232/422/485, select by software

Digital IOs   USB Hosts   LAN 2 LAN1   Power Input
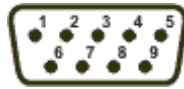
Serial Port Pin Assignment

Pin	RS232	RS422	RS485
1	DCD*	TXD-	---
2	RXD	TXD+	---
3	TXD	RXD+	DATA+
4	DTR*	RXD-	DATA-
5	GND	GND	GND
6	DSR*	---	---
7	RTS	---	---
8	CTS	---	---
9	---	---	---

*: port 2 only

Ordering Information

■ **Matrix-513**
ARM9-based Linux Computer
Note: mini-PCIe card, antenna and pigtail antenna cable are **NOT** included

■ **M-9001**
802.11 b/g/n half-size mini-PCIe WiFi card
(Advantech model name: EWM-W150H01E)

■ **M-9011**
full-size mini-PCIe 2G/3G card, with SIM socket,
(using Cinterion EHS5 series module)

■ **Ant-WiFi-1001**
5dBi external WiFi antenna

■ **Pigtail-WiFi-1001-20**
IPEX to RP-SMA Female coaxial cable, 20cm

■ **Ant-3G-1001**
5dBi external 2G/3G antenna

■ **Pigtail-3G-1001-20**
IPEX to SMA Female coaxial cable, 20cm