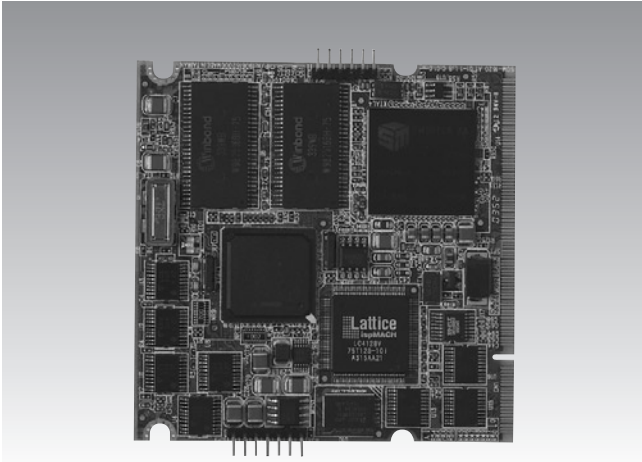# SOM-A2552 Series System On Module

Intel® XScale® PXA255 + SMI SM501 graphic chip with 8 MB Embedded SDRAM + Microsoft® Windows® CE .NET 4.2

Features

- 68 mm x 68 mm x 6.8 mm compact size module with a variety of reconfiguration options for selection
- Ultra low power PXA255 CPU with additional high performance multimedia chip SM501 (with 8 MB embedded SDRAM) for increased mobility and connectivity demands
- OS-ready package for Windows CE .NET/Linux support (Windows CE .NET 4.2 BSP ready)
- Pre-defined I/O-ready bus via SOM-A200 pin interface offers easy integration and upgrade possibilities
- Boot option by on-board Flash or CFC, makes for easy maintenance and cost savings
- Design-in Kit Package available for complete design-in support
- Optional RISC CE-Builder assists for customer image development

Introduction

Ultra low power, high quality with full motion video and dual monitor display

Using a dual-chip design principle, SOM-A2552 Series system on module integrates both an Intel PXA255 Ultra low power CPU & SMI Multimedia graphic chip for highly mobile, battery operated devices. SM501's video engine enhanced platform offers high quality video scaling, color space conversion, 8-bit/16-bit ZV Port for video input and video capture. Flexible dual monitor display function is provided along with a wide video format.

Design-in package ensures fast, low risk project implementation

Comprehensive design-in package provides developers with not only a completed reference kit and detailed design guide documentation, but also contains a testing tool set and Windows CE Board Support Package (BSP) for customer target platform image building.

Five supporting mechanisms are included in design-in package:

- **Design-in kit:** Provides developers a complete reference design-in suit for application evaluation/development and customer Customer Solution Board (CSB) development.
- **LCD Kit:** Supplies a full range of certified LCD kits in different sizes and types for customers to fit into their target CSB and application.
- **Windows CE builder:** Optional Software Support Platform that allows customers to create/customize/Integrate their own target image
- **Design-in Zone:** Assist Customers with their own CSB development by providing direct and professional technique support in an efficient way.
- **Design-in Forum:** Conducts a series worldwide SOM Design-in Forums/Seminars/Conferences thru various types of activities/formats, giving developers an opportunity/channels to receive and share the most updated information.

Applications

SOM-A2552 platform offers high computing power, low power consumption and high graphic performance and is ideal for graphic-based smart platforms,

- Wireless broadband terminals: Wireless access to video/TV/DVD/PVR, wireless access to broadband connection, digital picture viewer, remote access to Internet/e-mail, remote control of AV functions
- Smart display devices: Kiosks, small DTV, thin client, high end mobile consumer devices, videoconferencing,
- Mobile, battery-powered device platforms with large display demand
- Vehicle computing/telemetric platforms for navigation/entertainment demands
- Multimedia terminal device platforms with large display
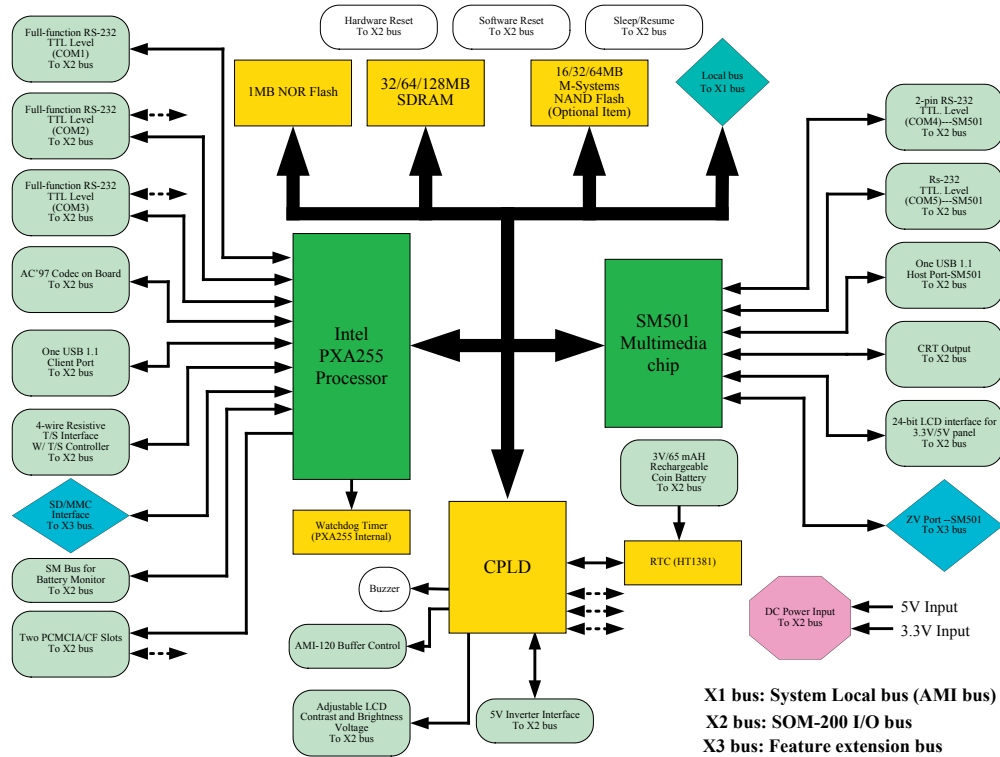- Security surveillance platforms with digital or analog video input/output

Specifications

Model Name / Func.	SOM-A2552-440B0	Reconfiguration Option
CPU	PXA255-400M Hz	200/300/400 MHz
Graphic Chip	SMI SM501 with 8 MB embedded SDRAM	SM501 with /without 8MB embedded SDRAM
System Memory(SDRAM)	64 MB	32/64/128 MB
Booting Flash	1 MB NOR Flash	-
On-board Flash (Image & Storage)	0 MB	0/16/32/64 MB
OS Image Storage	Windows CE .NET 4.2	Linux(By customer request)

AMI Bus (X1 Bus)	100-pin B2B connector with driving buffers	Yes
Feature Extension Bus (X3 Bus)	100-pin B2B connector (Provide ZV & SD/MMC I/F)	Yes
Watch Dog	PXA255 internal	-
RTC	External RTC w/backup power pin	Yes
System Backup battery	RTC/SDRAM	-
Serial Port	3x Full RS-232 (TTL), 1 x 2-wire RS-232 (TTL),1 x 3-wire RS-232(TTL)	-
PCMCIA/Compact flash I/F	2 PCMCIA/CF or 1 x PCMCIA, 1 x CF	-
USB Host	1 x USB 1.1 Host	-
USB Client	1 x USB Client	-
SD/MMC	1 x Ch (Support 1-bit Memory mode)	-
CRT-out	Up to 1024 x 768	-
ZV port	Yes	-
LCD TTL Interface	SM501 24-bit LCD interface, resolution up to 1024 x 768	-
Touch Screen Interface	4-wire resistive	Yes
Audio Codec	AC'97 codec on board, support Microphone-in, Line-in, Line-out, Speaker-out	Yes
Buzzer control	Yes	-
SM Bus Interface	Yes	-
System Reset	H/W Reset, S/W Reset, Suspend/Wake Up I/F	-
Power input	3.3 V/5 V	-
Operating temperature	0~60° C	Optional -10 ~ 70° C & -20 ~ 80° C certification
Operating humidity	0% ~ 90% relative humidity	-
Certification	FCC/CE	-
Form factor	68 mm x 68 mm x 6.8 mm	-

Note:"Reconfiguration Option" column provides users many choices. "-"means no option. If standard product SOM-A2552-440B0's spec. doesn't fit user's requirements, user could contact with Advantech for SOM-A2552 reconfiguration.
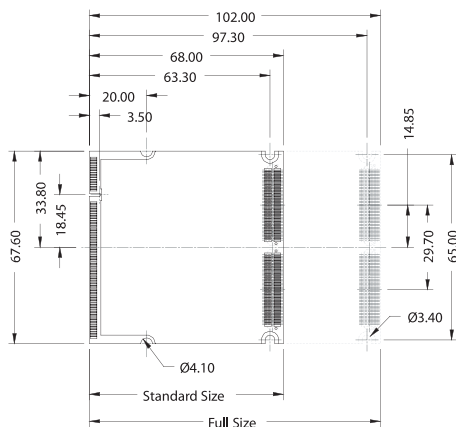
ADVANTECH **ARM / XScale Based Embedded Computing Solutions**

* Note: All specifications are subject to change without notice.

Board Diagram

Full-function RS-232 TTL Level (COM1) To X2 bus

Full-function RS-232 TTL Level (COM2) To X2 bus

Full-function RS-232 TTL Level (COM3) To X2 bus

AC'97 Codec on Board To X2 bus

One USB 1.1 Client Port To X2 bus

4-wire Resistive T/S Interface W/ T/S Controller To X2 bus

SD/MMC Interface To X3 bus.

SM Bus for Battery Monitor To X2 bus

Two PCMCIA/CF Slots To X2 bus

Hardware Reset To X2 bus

Software Reset To X2 bus

Sleep/Resume To X2 bus

1MB NOR Flash

32/64/128MB SDRAM

16/32/64MB M-Systems NAND Flash (Optional Item)

Local bus To X1 bus

Intel PXA255 Processor

SM501 Multimedia chip

Watchdog Timer (PXA255 Internal)

3V/65 mAH Rechargeable Coin Battery To X2 bus

CPLD

Buzzer

RTC (HT1381)

AMI-120 Buffer Control

Adjustable LCD Contrast and Brightness Voltage To X2 bus

5V Inverter Interface To X2 bus

2-pin RS-232 TTL. Level (COM4)---SM501 To X2 bus

Rs-232 TTL. Level (COM5)---SM501 To X2 bus

One USB 1.1 Host Port-SM501 To X2 bus

CRT Output To X2 bus

24-bit LCD interface for 3.3/5V panel To X2 bus

ZV Port --SM501 To X3 bus

DC Power Input To X2 bus

5V Input

3.3V Input

X1 bus: System Local bus (AMI bus)
X2 bus: SOM-200 I/O bus
X3 bus: Feature extension bus

Mechanical dimension

Unit: mm

102.00
97.30
68.00
63.30
20.00
3.50
14.85
33.80
18.45
67.60
29.70
65.00
Ø3.40
Ø4.10
Standard Size
Full Size

Packing List

- Bulk packing with 20 pcs in one box
- SOM comes with bootloader pre-installed only

**Sample image and related documentation included in Design-in kit only.
**SOM does not include Microsoft Windows CE .Net License.

Ordering Information

SOM-A2552 Design-in Package

- **SOM-ADK2552-B00 (Must order for design-in)** — SOM-A2552 Series Design-in kit. (**without panel bundle, please order suitable LCD kits)
- **LCD-A057-STQ1-0 (Optional item)** — 5.7" STN QVGA LCD kit. The kit includes 4-wire resistive T/S, inverter, cables and installation guide.
- **LCD-A064-TTV1-0 (Optional item)** — 6.4" TFT VGA LCD kit. The kit includes 4-wire resistive T/S, inverter, cables and installation guide.
- **LCD-A104-TTS1-0 (Optional item)** — 10.4" TFT SVGA LCD kit. The kit includes 4-wire resistive T/S, inverter, cables and installation guide.
- **LCD-A150-TTX2-0** — 15" TFT XGA kit. This kit includes 4-wire resistive T/S, inverter, cables and installation guide.
- **RSW-ACEBW01-042** — RISC CE-Builder Windows CE .Net 4.2 version 1.

SOM-A2552 series SOM alone (Minimum 20pcs/per order)

- **SOM-A2552-440B0** — PXA255-400 MHz, SMI SM501(with embedded 8 MB SDRAM), 64 MB SDRAM, 1 MB Boot Flash, with X1 and X3 extension bus connectors on board.
- **SOM-A2552-230A0** — PXA255-200MHz, 32MB SDRAM, Boot from CF, with AMI connector on board.
- **SOM-A2552-240N1** — PXA255-200MHz, 64MB SDRAM, no EVA-C210, Boot from CF, without AMI connector and feature extension connector on board.
- **Order your own reconfigured SOM** — Developers can check the reconfiguration option of the above specification table to order a customized SOM-A2552 Series product. If a customer has a reconfiguration demand, please contact la ocal Advantech RBU, distributor or enter http:/ www.advantech.com/risc to apply SOM-A2552 reconfiguration demands.