IGEP™ TECHNOLOGY

IGEP™ SMARC™ AM335x

OVERVIEW

ARM CORTEX-A8 CPU UP TO 1000MHz

The IGEP™ SMARC™ AM335x is an industrial ultra low power computer module based on ARM Cortex-A8 at speeds up to 1000MHz by Texas Instruments Sitara AM335x family of processors.

It's an industrial computer platform in a very low profile. The standard model is based on the AM3352 processor, but it can be customized with other of the same family. Furthermore, with different combinations of RAM and Flash memory, a complete list of interfaces and peripherals, and with the possibility to have a 3D graphics accelerator, it can be the base for any complex industrial equipment or any other kind of application.

This is one of ISEE's computer platforms designed according to SMARC™, one of the first form factor standards defined from SGET, with fixed dimensions and the same connection system in all manufacturers, allowing a full compatibility between different trademarks. These modules enable system architects to use a fully passive cooled development, ideal for portable and stationary embedded devices.

As a complementary product, it's also available a carrier board (IGEP™ SMARC™ EXPANSION) to help the user to develop his final application in an easy way.
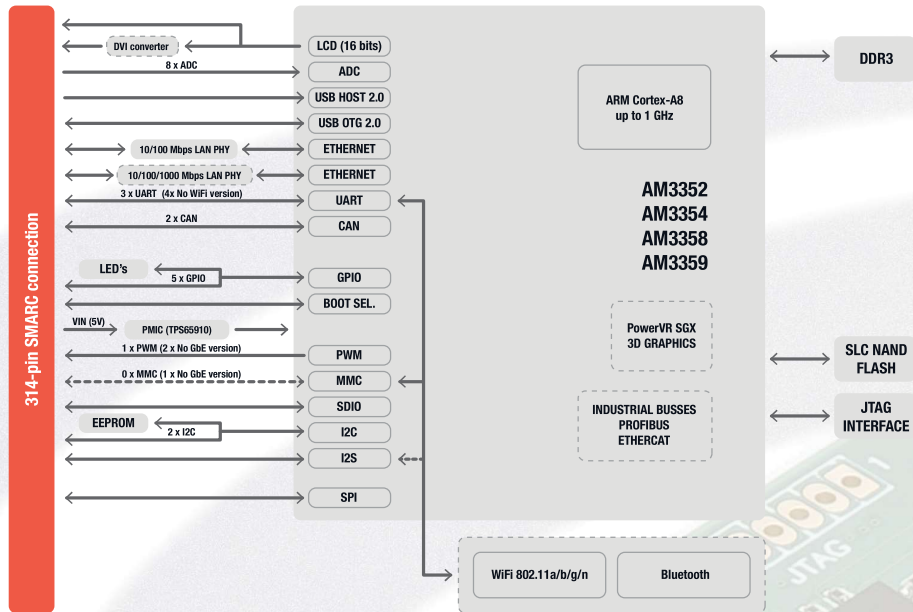
LIST OF MODELS

MODEL	PROCESSOR	FREQUENCY (MHZ)	WIFI & BLUETOOTH	GRAPHICS	RAM MEMORY	FLASH MEMORY
IGEP™ SMARC™ AM3352	AM3352	800 / 1000	Yes [1]		256 MB	128 MB
IGEP™ SMARC™ AM3354	AM3354	800 / 1000	Yes [1]	3D graphics	512 MB	512 MB
Customized models						
IGEP™ SMARC™ AM3358	AM3358	800 / 1000	Yes [1]	3D graphics	128 MB up to 512 MB	128 MB up to 512 MB
IGEP™ SMARC™ AM3359	AM3359	800	Yes [1]	3D graphics		

Notes:
1. Also available without WiFi/Bluetooth function under request.
2. Other RAM / Flash Memory available under request.

Processor	AM3352[1] / AM3354 / AM3358 / AM3359, by Texas Instruments ARM Cortex-A8 NEON SIMD Coprocessor Frequency speed up to 1000 MHz (depending on model)
3D/2D Accelerator	PowerVR SGX GPU, providing graphics acceleration with OpenGL ES1.0, OpenGL ES2.0 and Open-VG support. (Depending on model.)
Memory	RAM: 128 MB up to 512 MB [2] FLASH: 128 MB up to 512 MB [3]
Ethernet	10/100 Mbps Ethernet PHY interface 10/100/1000 Mbps Ethernet PHY interface (optional)
USB 2.0	1 x USB 2.0 Host 1 x USB 2.0 OTG
Display	1 x Digital Video/TFT interface (16-bits) 1 x DVI-D/HDMI (16-bits) (optional)
Additional Interfaces	2 x I2C 2 x CAN 1 x SPI 5 x GPIOs 1 x McASP/I2S (Digital Serial Audio Interface) 1 x PWM 8 x ADC 3 x UART 2 x MMC JTAG interface
SW Support	Linux
Power	Power Supply: From 4,5 V to 5,5 V Digital I/O voltage: 1,8 V
Power Consumption	Typical 1,8 W (depending on software) Maximum 3,5 W (depending on software)
Thermal	Commercial temperature: 0°C to +60°C Industrial temperature: -40°C to +85°C
Form Factor	82,00mm x 50,00mm
Humidity	93% relative Humidity at 40° C, non-condensing (according to IEC 60068-2-78)
MTBF	>100000 hours

Notes:
1. Standard setup
2. Standard setup RAM Memory: 256 MB
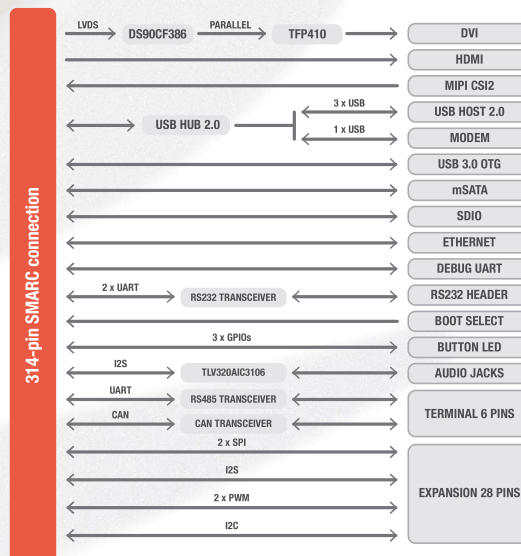3. Standard setup Flash Memory: 128 MB

IGEP™ SMARC™ EXPANSION BOARD

The expansion board is a fully equipped baseboard that access to almost all IGEP™ SMARC™ AM335x functionalities. It has been designed to be used as the fastest way to develop and check the user's final application before building a prototype, saving costs and reducing time to market. This model can be used with all the IGEP™ SMARC™ series modules.

TECHNICAL SPECIFICATIONS

Connectors	1 x SMARC™ connector
	+5V Power Supply
	1 x 10/100/1000Mbps Ethernet PHY Interface
	1 x HDMI 1.4a output type A receptacle
	3 x USB 2.0 type A receptacle
	1 x USB 3.0 type AB receptacle
	1 x Serial RS232 3V3 expansion header
	1 x Serial TTL 3V3 debug header
	1 x Stereo Line mic in mini jack
	1 x Stereo Line Audio Out mini jack
	1 x Stereo Line Audio In mini jack
	1 x DVI connector
	1 x CSI connector (Rapsberry Pi camera compatible)
	1 x Terminal 5 pins plug
	1 x I/O Expansion 28 pins header
	1 x Modem USB interface
	1 x mSATA interface
	1 x Micro-SD connector
Features	1 x Button LED
	3 x Boot jumpers
	1 x PWM
	1 x SPI
	1 x I2C
	1 x MMC
	1 x CAN transceiver
	1 x RS485
	2 x RS232
	1 x Audio codec
Dimmensions of the Expansion Board (without case)	142 x 90 mm
Case dimmensions	150 x 100 x 30 mm

BLOCK DIAGRAM

Portable data terminals
Navigation
Auto Infotainment
Gaming

Medical imaging
Home automation
Human Interface
Industrial Control

Test and Measurement
Single board computers
Audio and image processing

ORDERING INFORMATION

MODEL	REFERENCE	DESCRIPTION
IGEP™ SMARC™ AM3352	IGEP-SMARC-AM3352-256M-128M-W-FE-NE-ND	Processor AM3352, 256MB RAM, 128MB FLASH, WIFI, Fast Ethernet
IGEP™ SMARC™ AM3354	IGEP-SMARC-AM3354-512M-512M-W-FE-E-D	Processor AM3354, 512MB RAM, 512MB FLASH, WIFI, Fast Ethernet, Gigabit Ethernet, DVI-D
Customized models (minimum purchase order: 100 units)		
IGEP™ SMARC™ AM3358	IGEP- SMARC-AM3358-256M-128M-W-FE-E-D(*)	Processor AM3358, 256MB RAM, 128MB FLASH, WIFI, Fast Ethernet, Gigabit Ethernet, DVI-D(*)
IGEP™ SMARC™ AM3359	IGEP- SMARC-AM3359- 256M-128M-W-FE-E-D(*)	Processor AM3359, 256MB RAM, 128MB FLASH, WIFI, Fast Ethernet, Gigabit Ethernet, DVI-D(*)
Related Products		
IGEP™ SMARC™ EXPANSION	BASE0040-RB10	Expansion board for fast prototyping of user's projects.

(*):
1. No Wifi: NW – instead of W- available on request.
2. Other RAM / Flash available on request.
3. No Gigabit Ethernet available on request (NE).
4. No Fast Ethernet available on request (NFE).
5. No DVI-D (ND) available on request.

ABOUT ISEE

ISEE is an Engineering company specialized in embedded-computer systems.

Our mission is to offer complete embedded solutions that help industries to improve their production level, reducing costs and time-to-market of their products, allowing to gain a competitive edge.

We are able to help our customers with our own products, standard or customized, or developing a concrete project according to the needs of that application.

Our services include technical support (hardware and firmware) to help the user along the project.

EVOLUTION OF THE COMPANY

2006
· ISEE starts its activity as Integration Software and Electric Engineering.
· The ISEE Engineers create the IGEP™ concept.

2007
· ISEE creates the IGEP™ Technology.
· ISEE releases the first IGEP™ Platform based on ARM9.

2009
· ISEE releases the second generation of IGEP™ Platform with IGEP™v2.
· ISEE develops the IGEP™v2 Expansion.
· ISEE develops IGEP™ Radar Techology.

2010
· IGEP™ COM MODULE arrives to the market.
· IGEP™ COM PROTON arrives to the market.
· ISEE releases the IGEP™ COM MODULE expansion family with IGEP™ BERLIN and IGEP™ PARIS.

2011
· IGEP™v2 and all Expansion boards goes open source and open hardware licensed under Creative Commons Attribution-Non Commercial-Share Alike 3.0 unported license.
· ISEE develops a new Module based on OMAP4 family processors.

2012
· ISEE develops IGEP™ COM AQUILA the Cortex-A8 low cost solution.
· ISEE develops the new Platform IGEP™v5 based on OMAP5 family.

2013
· ISEE releases IGEP™ COM AQUILA and IGEP™ AQUILA Expansion.
· ISEE releases the new Platform IGEP™v5.

2014
· ISEE develops new modules based on SMARC™ protocol.

2015
· ISEE releases its first SMARC™ modules: IGEP™ SMARC™ PXA2128 and IGEP™ SMARC™ iMX6.

2016
· ISEE releases IGEP™ SMARC™ AM335x.

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