A Linux computer powered by an ARM11 core

AD7011-EVA

Optimized for MATLAB®/Simulink® target machines

Comes with a software tool for easy creation of control console screens and graphical user interfaces (GUI)

Runs a Linux OS with a real-time extension (Xenomai), which is essential for measurement and control

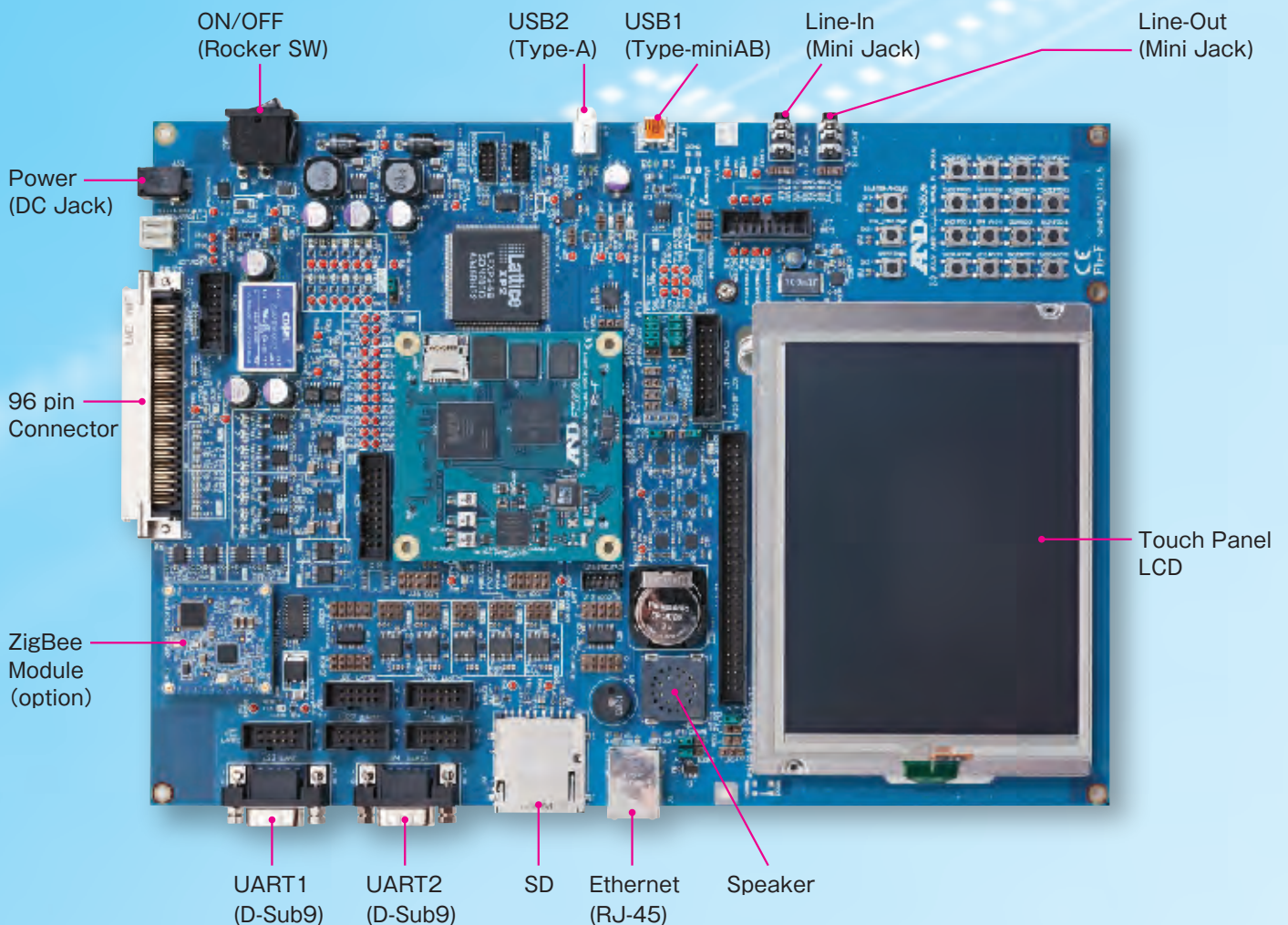## A Linux computer powered by an ARM11 core

AD7011-EVA

The AD7011-EVA is a Linux computer with diversified array of inputs and outputs, including ADC (Analog-Digital-Converter) and DAC (Digital-Analog-Converter), which are necessary for measurement and control.
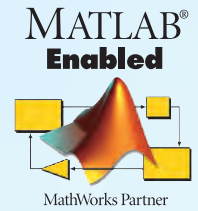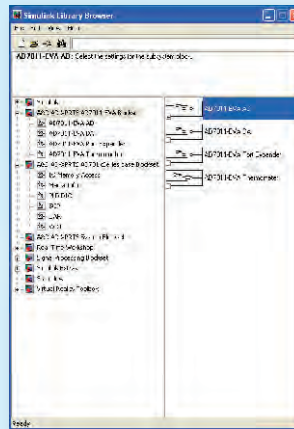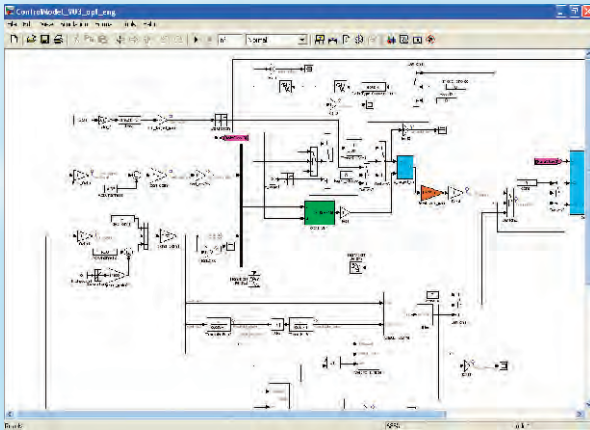
You can make control programs using Mathworks MATLAB/Simulink or C-language (Eclipse) and create GUIs and console screens by drag-and-drop with A&D's AD-VirtualConsole (bundled software). You perform a series of operations on a Windows PC and then transfer your work to the AD7011-EVA.

The AD7011-EVA includes S-function programs (driver software) for all equipped input-output interfaces as standard so you can get to work quickly.

The AD7011-EVA is a very reasonably priced product for actual device validation tests and control as a target machine of MATLAB/Simulink, a model-based development tool that has received much attention recently.

The AD7011-EVA equipped with an i.MX31 with an ARM1136 core processor, a Linux OS with a real-time extension (Xenomai) and a ZigBee module (option) for wireless communication.

AD7011-EVA Board

Labels on board:
- ON/OFF (Rocker SW)
- USB2 (Type-A)
- USB1 (Type-miniAB)
- Line-In (Mini Jack)
- Line-Out (Mini Jack)
- Power (DC Jack)
- 96 pin Connector
- Touch Panel LCD
- ZigBee Module (option)
- UART1 (D-Sub9)
- UART2 (D-Sub9)
- SD
- Ethernet (RJ-45)
- Speaker

MATLAB®/Simulink®

MATLAB®
Enabled

MathWorks Partner

● **Create control programs with MATLAB/Simulink**
Create model-based control programs on a Windows PC using MATLAB/Simulink.
Required software: MATLAB2007b series, MATLAB, Simulink, and Real-Time Workshop.
(Trial versions of MATLAB, Simulink and other software can be downloaded from the Mathworks website.)

MATLAB and Simulink are registered trademarks of The Mathworks, Inc.

GUI design tool: AD-VirtualConsole Designer
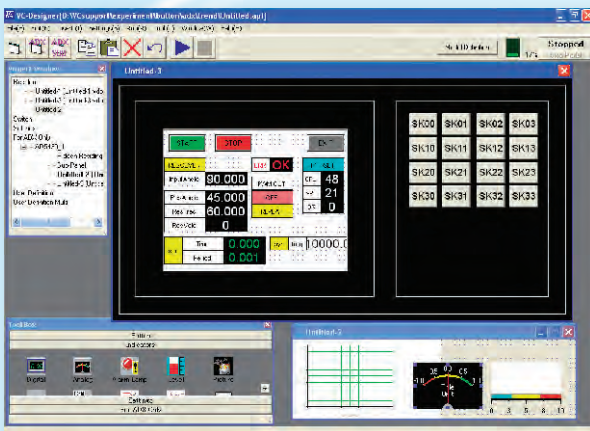
● Easily design your own control console screens on a host PC (Windows PC).
● Choose and place diversified parts, such as indicators, switches, signals, and graphs, to create various console screens.
● Console screens are created using drag and drop operations.
● Personalize the color and size of screen parts.
● After completing the screen, associate definitions with the control program, and then run the control program and console screen together.

■ **Bundled software** (A software DVD is bundled with AD7011-EVA.)
● **Host environment (Microsoft Windows)**
ARM cross compiler (cygwin + gcc4.1.1 + glibc2.4 + binutils2.17)
ARM cross debugger (gdb 6.6)
Application development environment (Eclipse 3.4.2 Ganymede Pleiades All in One + Code Generator Plugin for Eclipse)
GUI development tool (AD-VirtualConsole)
S-function for EVA board (DIO, UART, WatchDog, SPI, 1-Wire, I2C device, etc.)
● **Host environment (Linux)**
ARM cross compiler (gcc4.1.1 + glibc2.4 + binutils2.17)
ARM cross debugger (gdb 6.6)
Root-file building tool (LTIB)
● **Target environment (AD7011-EVA)**
・Boot loader : RedBoot
・OS : Linux 2.6.19 + Real-time extension (Xenomai 2.3.4)
・Root file
Diversified software (busybox, glibc, alsa, openssh, samba, etc.)
・Driver Library
Driver Library for EVA (DIO, UART, WatchDog, SPI, 1-Wire, I2C device, etc.)

● **Confirm the license information that is included with the software.**
● **Supported Windows operating systems**
Microsoft® Windows® XP Professional SP3
Microsoft® Windows® Vista Business SP1

■ AD7011-EVA Specifications

Model code	AD7011-EVA
OS	Linux + Xenomai (Real-time extension)
CPU	Freescale i.MX31
	ARM1136JF-S (532MHz), I/D Cache: 16KB/ 16KB, L2 Cache: 128KB,
	floating-point coprocessor (VFP)
Memory	DDR SDRAM: 128MB, NOR: 16MB (for OS), microSD: 512MB (for applications)
LCD	LAT057A347F, 5.7-inch, TFT color, QVGA (320 x 240), 260,000 display colors,
	LED backlight, four-wire resistive touch display
UART	RS232C/RS485 (Switching)
	UART1 and UART2: D-sub 9-connector and pin header
	UART3 to 5: pin header only
USB	Host: Type-A connector × 1
	OTG: Mini-AB connector × 1
Ethernet	RJ45 connector × 1
SD	SD card connector × 1
Sound	Line in mini jack (Stereo) × 1, Line out mini jack (Stereo) × 1,
	Small speaker (Mono), Buzzer
I2C	MAX7325 Port Expander (8 push-pull, 8 open-drain output) × 2, pin-header output × 2
1-Wire	DS18B20 temperature meter × 1, pin header × 1
Keypad	4 × 4 matrix switch and pin header
CSPI	ADC: 4-ch, 12-bit, single ended, ±10V input, AD7323 (96 pin connector)
	DAC: 4-ch, 12-bit, single ended, ±5V output, AD5024 (96 pin connector)
	ZigBee Module (plus antenna)
External bus	ADC: 4-ch, 12-bit, single ended, ±10V input, AD7323 (96 pin connector)
	DAC: 4-ch, 12-bit, single ended. ±5V output, AD5024 (96 pin connector)
	FPGA for control (LFXP2-5E-5QN208)
Interrupt input	LVTTL (96 pin connector)
GPIO	12-bit LVTTL (96 pin connector)
Watchdog output	LVTTL (96 pin connector)
96 pin connector	PCR-E96LMD+ male connector (mounted on board) [Honda Tsushin Kogyo Co., Ltd.]
EEPROM	93C66, 4k-bit × 1 (for storing base board information)
JTAG	CPU Module PLD pin-header for writing × 1
	CPU Module i.MX31 pin-header for debugging × 1
Board size	210 mm / 8.27 inches × 297 mm / 11.69 inches (A4 paper size)
Chassis size	222 mm / 8.74 inches (W) × 317 mm / 12.48 inches (D) × 43 mm / 1.69 inches (H)
Power source	12V, 3.8A, AC power adapter (Standard), 3.0V button battery (for back-up)
Usable temp range	0 to 70°C
Standard accessories	Quick start guide, DVD (development environment software, manual, circuit diagram, etc.),
	AC adapter, PCR-E96FS+ (96-pin female solder type connector) [Honda Tsushin Kogyo Co., Ltd.]

Appearance and/or specifications subject to change for improvement without notice.