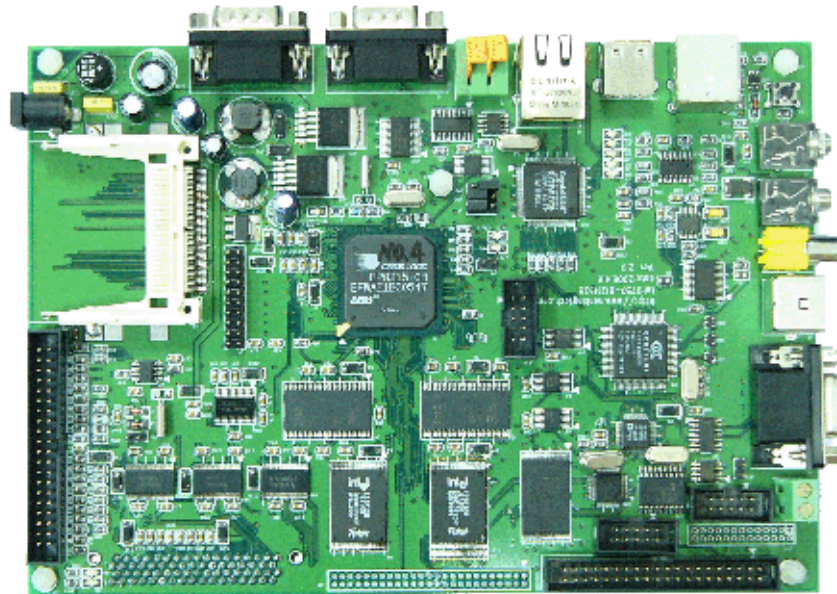# NK9315A Evaluation Board

➢ A Complete Evaluation Kit for Cirrus Logic EP9315 ARM920T Microcontroller
➢ RS232, CAN, USB Host, 10/100M Ethernet, LCD Interface, VGA, IIS, CF, IDE…
➢ Capable of supporting Linux, WinCE or any embedded operating system

The Cirrus Logic EP9315 is a highly integrated system-on-chip processor that paves the way for next-generation consumer and industrial electronic products. The EP9315 features an advanced 200 MHz ARM920T processor designed with a memory management unit (MMU) and is augmented by the MaverickCrunch™ coprocessor to accelerate the ARM920T's single- and double-precision integer and floating-point processing capabilities. It has separate 16KB data cache and 16KB instruction cache and includes 1/10/100 Ethernet, IDE storage peripherals, keypad, a three-port USB 2.0 full-speed host (OHCI), running at 12 Mbps, and three UARTs. Additionally the EP9135 includes a 2D graphics accelerator, integrated LCD controller, touchscreen and high quality audio to enable easy to use products with vibrant multimedia capabilities. A highly flexible memory interface provides compatibility with SDRAM, SRAM, Flash, and ROM.

Embest NK9315A Evaluation Board takes full features of the high-performance Cirrus Logic EP9315 microcontroller system-on-chip and full Bus and peripheral signals are expanded through interfaces on board including IDE, CAN, LCD & Touchscreen, VGA/S-Video/Composive output, Ethernet, PS/2, UART, USB Host, IIS, CF card, keyboard, Jtag, etc. There is also a PCMCIA interface on the rear of the board which supports one 16-bit PCMCIA PC Card to add memory, mass storage and I/O capabilities to computer systems and thus can be used to further broaden the options of a designer's platform. The LCD and Raster interface of EP9315 is with a graphics accelerator, which is used in the system to off load graphics operations from the processor.

The board supports high-lever operating systems such as Linux, Windows CE and other embedded operating systems. The board's code support package includes WINCE.net 4.2 BSP,

embedded Linux source code and a download utility.

Typical applications of Embest NK9315A board are POS (Point-of sale), internet audio, internet access devices, industrial computers, test and measurement equipments, digital media servers, industrial controls, biometric security systems, etc.

Hardware Description

- ✓ Dimensions: 140x200mm
- ✓ Processor: Cirrus Logic EP9315 based on 32-bit ARM920T core microcontrollers
- ✓ Power input: DC12.0V
- ✓ 32M NOR Flash Memory
- ✓ 32M Nand Flash Memory
- ✓ 64M 32bit SDRAM
- ✓ LCD Display and Touch-Screen interface
- ✓ Analog VGA connection
- ✓ Composite Video and S-Video Output Connections
- ✓ IDE Interface
- ✓ CAN interface
- ✓ Triple Port USB Host
- ✓ 20pin standard JTAG interface
- ✓ Real-Time Clock
- ✓ I2S Interface
- ✓ 8*8 Keyboard interface
- ✓ PS/2 Interface
- ✓ 5 UARTs, One is RS485, and the other four are RS232, two of which are extended through one PC16C2550 chip using two 10pin connectors
- ✓ 10/100Mbps Ethernet Interface
- ✓ CF card socket
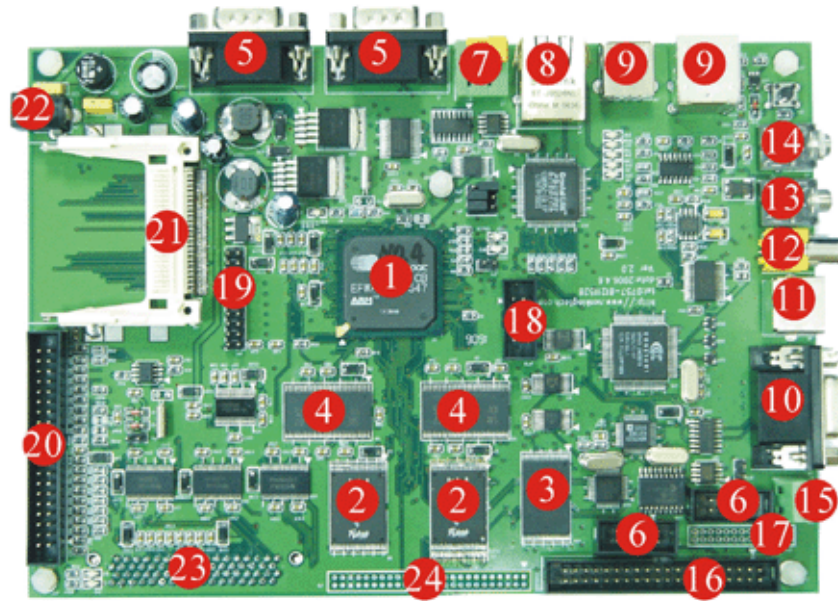- ✓ PCMCIA socket
- ✓ System bus interface

EP9315 Block Diagram
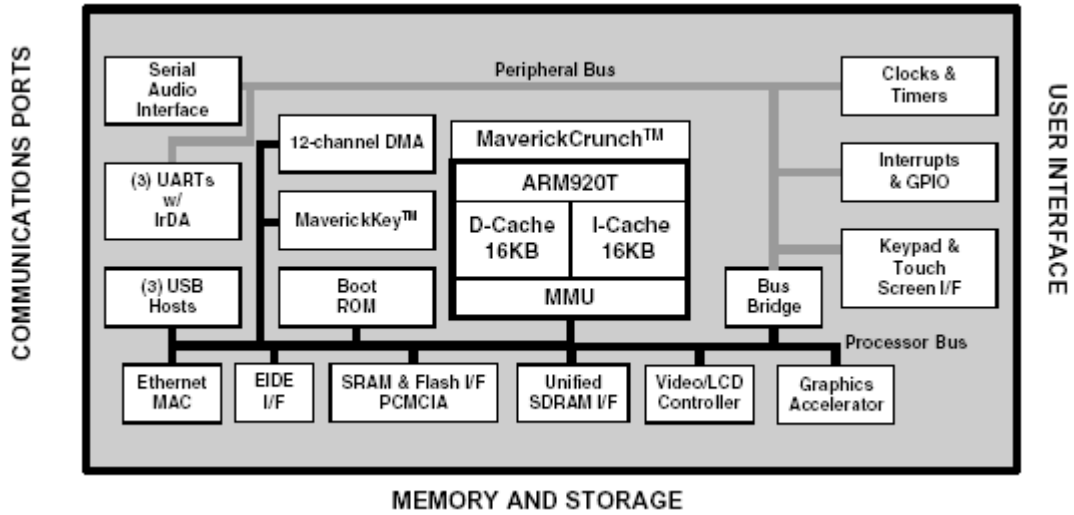

EP9315 Main Data Paths
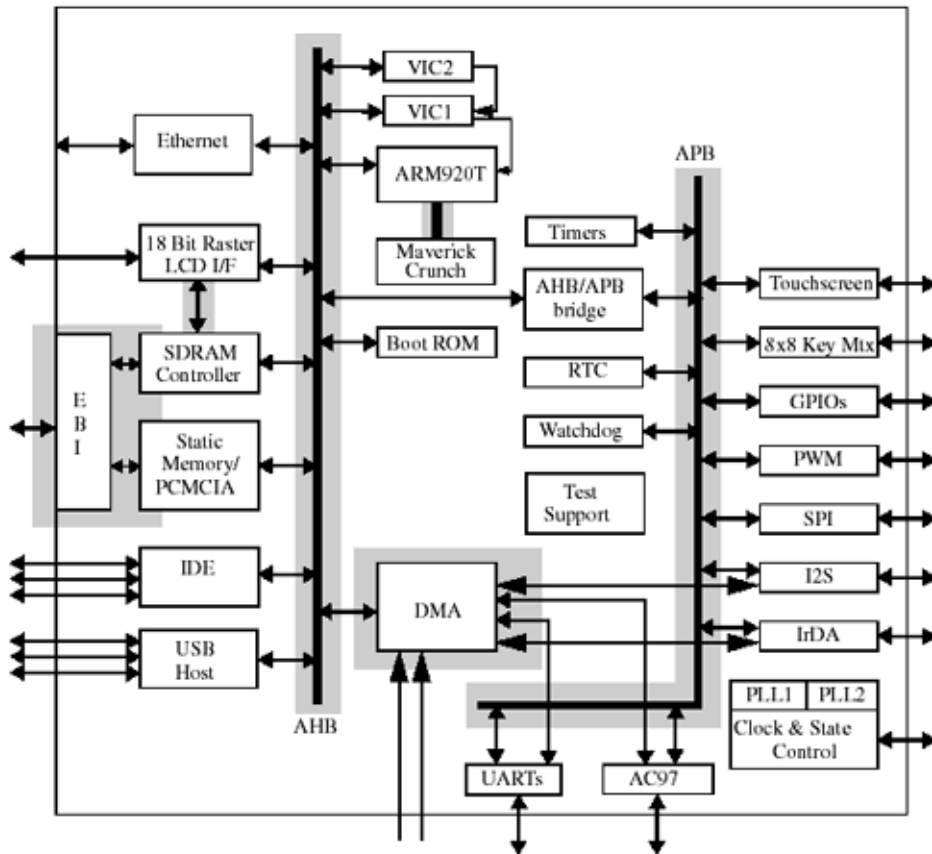
Embest NK9312 Main Interfaces Introduction

No.	Description
1	Cirrus Logic EP9315 microcontroller
2	16M Intel Strata Flash
3	64M Nand Flash
4	64M 32bit SDRAM
5	RS232 ports
6	RS232 ports extended through one PC16C2550 chip
7	RS485 port
8	10/100Mbps Ethernet Interface
9	Three-port USB Host
10	Analog VGA connector
11	S-Video connector
12	Composite Video connector
13	IIS, Audio input
14	IIS, Audio output
15	CAN bus interface
16	LCD interface (supports resolution up to 1024 x 768)
17	8 x 8 Keyboard interface
18	Touchscreen interface
19	Jtag interface
20	IDE interface
21	CF card socket
22	Power jack
23	PCMCIA socket (on the rear of the board)
24	System bus interface

ARM920T Block Diagram
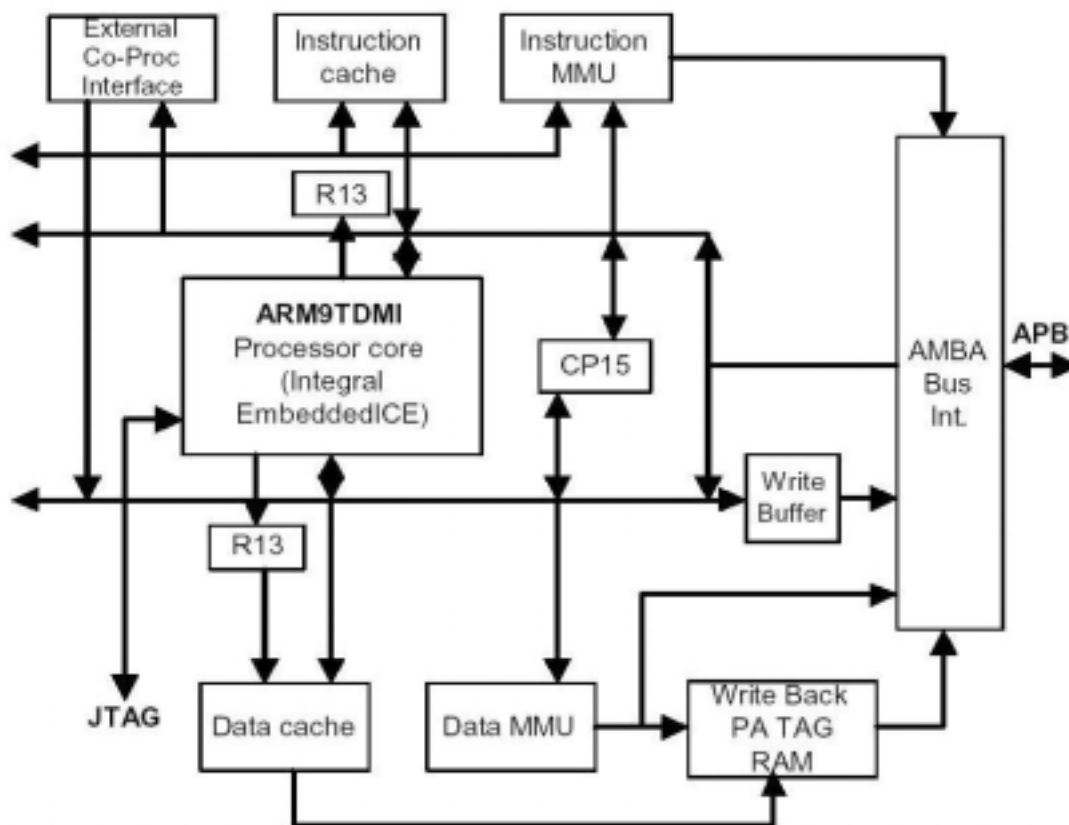
Software Description

The software provided with the development board is WINCE.net 4.2 BSP, Embedded Linux 2.4.21/2.6.8 kernel and a download utility. All of those are in source code. Please see details as following:

Y - Already OK and provided   *N - Do not provide at present*
O - Option design service   *D - Under development*

Driver	WinCE 4.2	Linux 2.4.21/2.6.8
LCD 640*480*16bbp	Y	Y
TV	Y	Y
S-VIDEO	Y	Y
VGA	Y	Y
2 x FLASH (32MB)	Y	Y
1 x FLASH (16MB)	N	O
I2S Audio Input / Output	Y	Y
PCMCIA	Y	Y
USB2.0	Y	Y
IDE	Y	Y
CF Card	Y	Y

www.armkits.com

8*8 Keyboard	N	Y
CAN bus interface	D	D
Ethernet interface	Y	Y
2 UARTs extended through PC16C2550 chip	D	O
extension bus	N	N
64M NAND FLASH	D	O

Order Information

The NK9315A Evaluation Board Kit contains an NK9315A Evaluation Board, complete development tools and software resource in a low price.

Order No.	EBD2_2
Item	NK9315A Evaluation Board
Description	Board with EP9315 processor
CD-ROM	• WinCE.net 4.2 BSP • ARM Linux for EP9315 kernel 2.4.21 • PC downloader • user manual • circuit schematic drawing
Development tools	• Linux cross-compiler tool
Others	• Serial Cable • Ethernet Cable • 12V DC power supply
Optional hardware	• 640 x 480 6.4" TFT LCD & Touch Screen for NK9312 board, with a tiny board to supply backlight power.
Option Tools	Embest IDE for ARM Development Tools Suite I, II includes: • IDE, editor, GNU ARM Compiler and Linker, debugger, full registered version • Embest PowerICE or Embest UnetICE • Embest Flash Programmer

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