Qong, Squirrel, Oqtopus Freescale i.MX31 ARM11 CPU modules

DAVE
Simply Embedded

- CPU modules based on Freescale's ARM1136 i.MX31C processor
- Three models:
    - Qong: always at work - dedicated to industrial applications
    - Squirrel: always on the move - dedicated to mobile applications
    - Oqtopus: always in touch - dedicated to connectivity
- Extremely compact form factor
- Low power consumption
- Great versatility

Qong, Squirrel and Oqtopus are Dave's ARM11 CPU module family. They are based on Freescale ARM1136 i.MX31 microprocessor and each module targets a specific application area.

Qong is conceived for the industrial world: it embeds the "C" version of the i.MX31 CPU, which is specifically designed to work in the extended temperature range (-40°C/+85°C). The on-board FPGA gives great design flexibility, allowing customers to add support for custom peripherals.
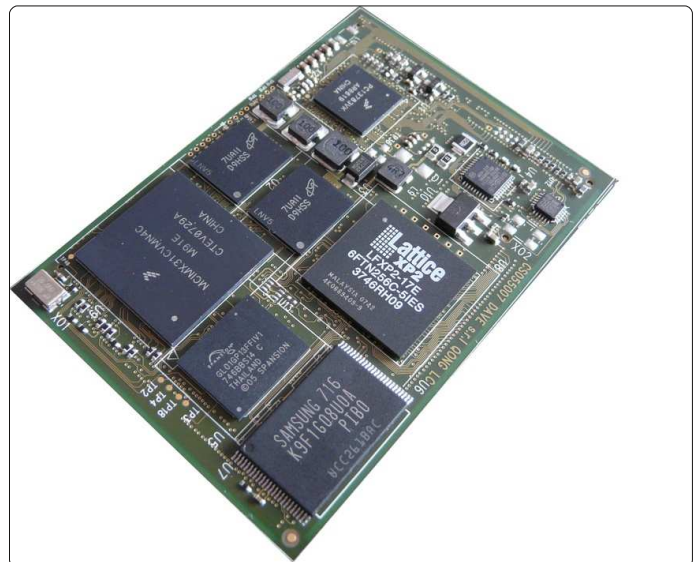

Squirrel, with its compact form factor, reliability and low power consumption make it suitable for palm-based solutions both in Linux and Windows CE, and is perfect for battery supported applications.

Thanks to the set of peripherals implemented, Oqtopus is the perfect solution for embedded systems where connection and communication are the primary requirements.
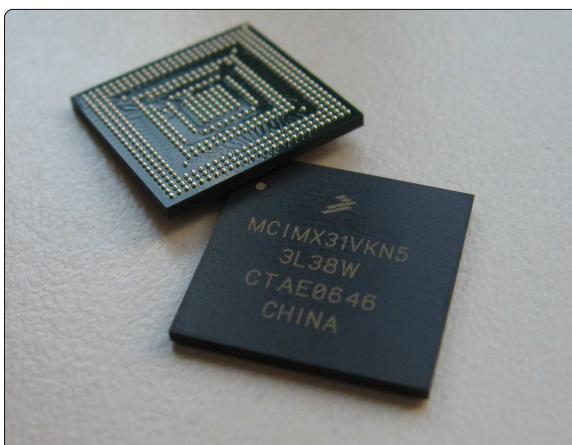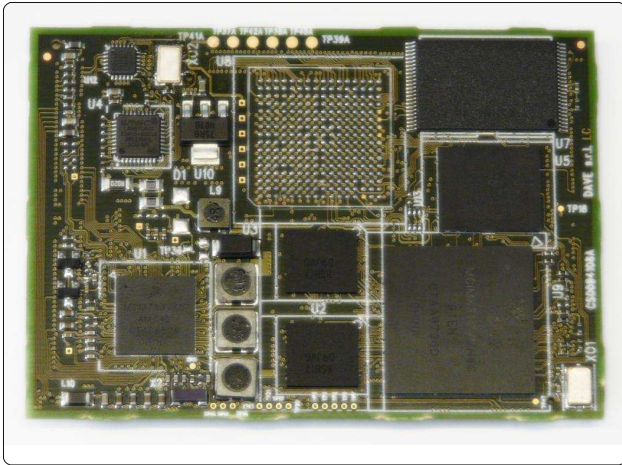
Block Diagram
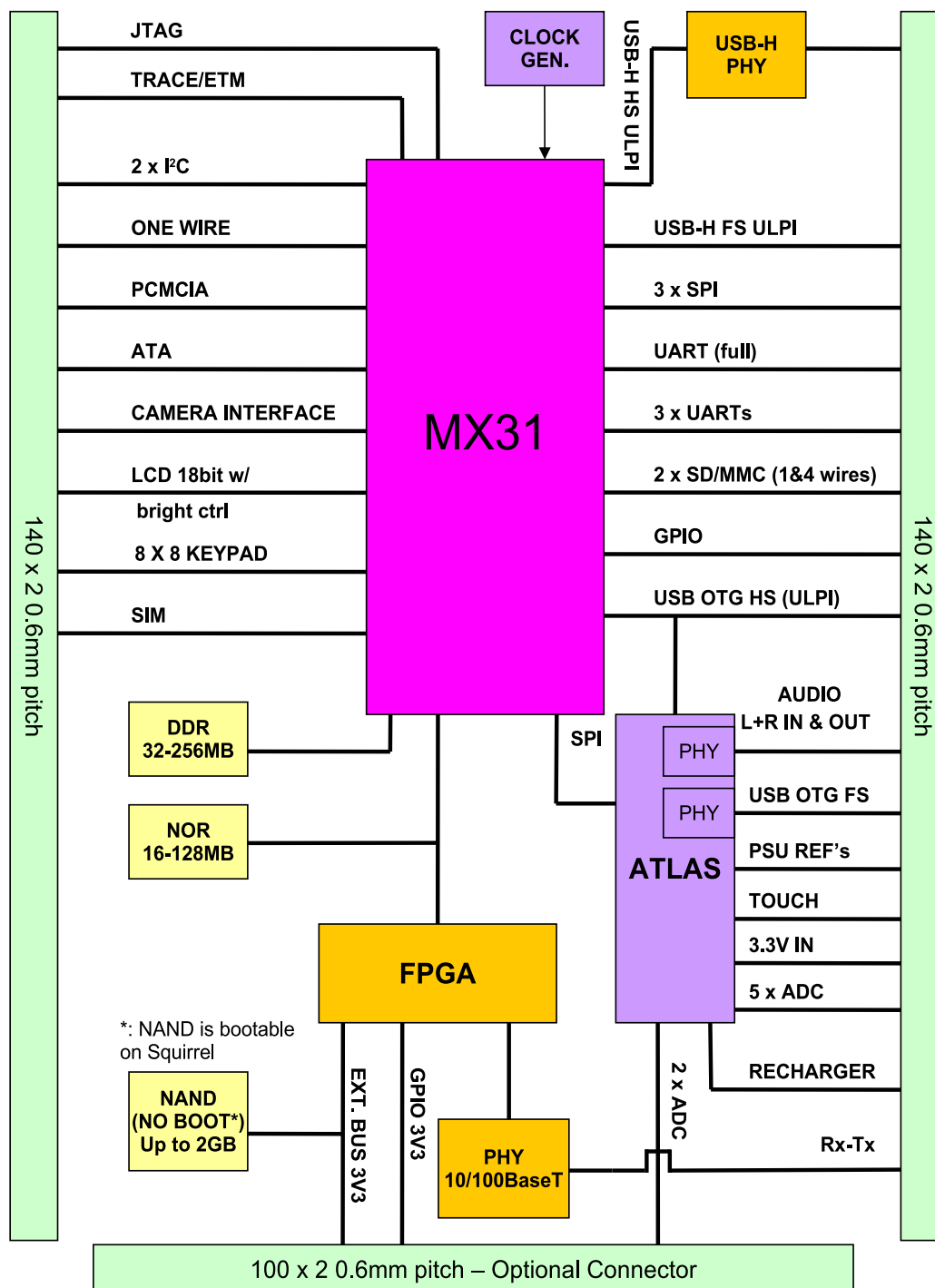
The block diagram shows the superset of all the available interfaces available on Qong, Squirrel and Oqtopus. Each CPU module implements a specific subset of these interfaces

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Product line: http:// www.dave.eu/products.html

Technical Specification

CPU	Freescale i.MX31C @ 400 MHz, 32 bit ARM1136JF-S core with MMU Vectored Floating Point Unit
Multimedia	Hardware MPEG4 SP VGA 30 fps Encoding (Software Decoding) PowerVR MBX 3D Multimedia Accelerator OpenGL compatible (0.9MTri/s) Analog Audio Stereo Input/Output
Supervisor	MC13783 power supply separate supervision; on-board power sequencer Dynamic Voltage Frequency Scaling RTC and Watchdog

Memory

Cache	16 Kbyte instruction, 16 Kbyte data, 128 Kbyte L2
SDRAM	32 MByte to 256 MB Low Power DDR2
NOR	16 to 128 MB (Not available on Squirrel)
NAND	Up to 2 GByte (8 bit interface, bootable on Squirrel)
SRAM	16 Kbyte

Interfaces

LAN	Fast Ethernet 10/100 Mbps including PHY
UART	Up to 4x UART ports
USB	1x 2.0 Full Speed (480 MBps) Host port with PHY 1x 2.0 High Speed (12 MBps) Host port 1x OTG interface
I2C	2x multimaster @ 400 KHz
External Bus	8-16 bit - 29 address bits - 4 direct chip selects
I/O Controller	GPIOs available
Debug	JTAG IEEE 1149.1 Test Access Port
Storage	1x SD/MMC card 1x ATA channel
Other	PCMCIA 1x 1-Wire Up to three SPI channels On-board FPGA (on Qong and Oqtopus)

Video

Resolution	Native up to 800x600 @ 16bpp Resolution extension up to 1024x768 available through advanced module capabilities (Qong and Oqtopus)
Type	STN, CSTN, TFT, HR-TFT
Touch Screen	Yes, resistive

Mechanical

Connectors	2x 140 pins 0.6mm pitch 1x 100 pins 0.6 pitch (on Qong and Oqtopus)
Physical	73 mm x 51 mm
Temperature	Industrial (-40°C / +85°C) Temperature Range

PSU

Input	3.3V through connectors, full regulation on board
Consumption	Squirrel: 250 mA (without LCD) Qong, Oqtopus: 450 mA (without LCD)

Software

Bootloader	U-Boot
Multitasking OS	Linux 2.6.xx Windows CE 6.x

Agency approvals
EN 55022 (t.b.o.)
EN 61000 (t.b.o.)

- Squirrel
  - Ease of use
  - Compact form factor
  - Very low power consumption
  - Reduced costs
  - Battery powerable

- Oqtopus
  - Wide interfaces set
  - On-board FPGA
  - Industrial specs compliant
  - Connectivity-oriented

- Qong
  - Extended temperature range (-40°C/+85°C)
  - Dedicated to the industrial world
  - Three available profiles: Industrial1, Industrial2, Kiosk

- QongEVB available to evaluate the entire Dave's ARM11 CPU module family

Qong, Squirrel and Oqtopus Order Codes

Please contact our Sales Department (sales@dave.eu) for available models and prices.

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