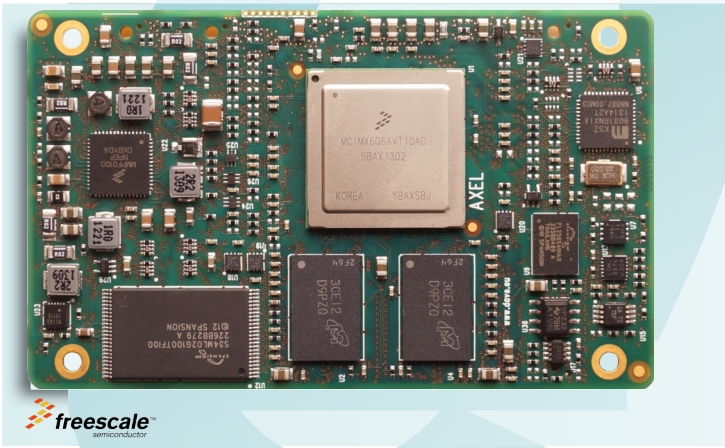
ULTRA LINE

AXEL ULTRA

FREESCALE i.MX6 Solo - Dual - Quad core CPU MODULE

- Unmatched performances thanks to Solo-Dual-Quad ARM Cortex A9 MPCore @ 1.2 GHz
- All memories you need on-board
- Boot from NOR for safe applications
- Enabling massive computing applications thanks to wide range DDR3 RAM memory up to 4GB
- Wide range PSU input from 3.1V to 4.5V
- High mechanical retention up to 100G shock thanks to up to 3x140pin and 4 screw holes
- Reduced carrier complexity: dual CAN, USB, Ethernet GB, PCIe, SATA and native 3.3V I/O
- Suitable for Asymmetric Multicore Processing
- Cost saving thanks to on-board 5ppm RTC



AXEL ULTRA is the new top-class Solo - Dual - Quad core ARM Cortex-A9 CPU module by DAVE Embedded Systems, based on the popular Freescale i.MX6 application processor.

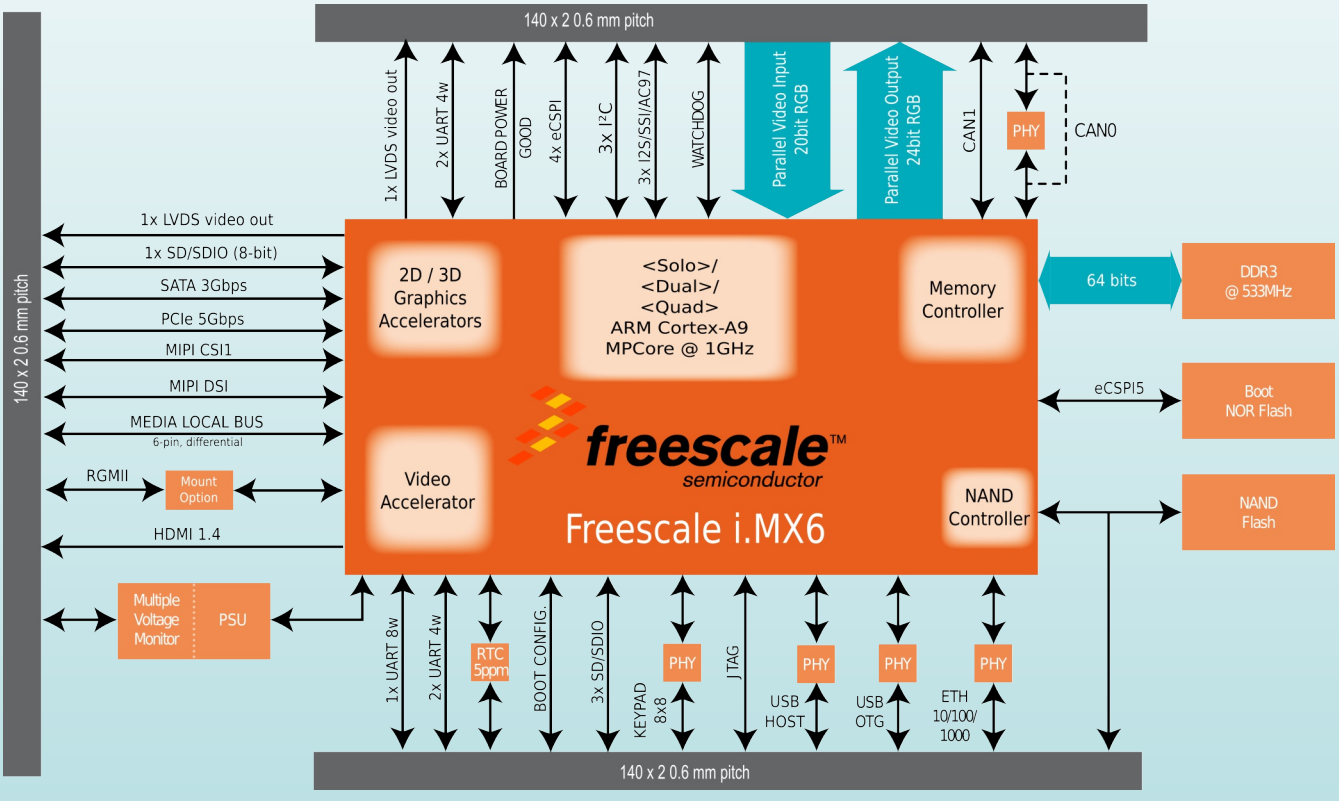
Thanks to AXEL ULTRA, customers are going to save time and resources by using a compact solution that permits to reach scalable performances that perfectly fits the application requirements avoiding complexities on the carrier PCB.
The use of this processor enables extensive system-level differentiation of new applications in many industry fields, where high-perfomances and extremely compact form factor (85mm x 50mm) are key factors. Smarter system designs are made possibile, following the trends in functionalities and interfaces of the new, state-of-the-art embedded products.

AXEL ULTRA offers great computational power, thanks to the rich set of peripherals, the Scalable ARM Cortex-A9 together with a large set of high-speed I/Os (up to 5GHz).

AXEL ULTRA enables designers to create smart products suitable for harsh mechanical and thermal environments, allowing for the development of high computing and reliable solutions.

Thanks to the tight integration between the ARM Core-based processing system, designers are able to share the applications through the multicore platform and/or to divide the tasks on different cores in order to match with specific application requirements (thanks to AMP it is possible to create applications where RTOS and Linux work together on different cores).
AXEL ULTRA is designed in order to keep full compatibility with the ULTRA Line CPU modules, to guarantee the premium quality and technical value of those customers that require top performances.

AXEL ULTRA is suitable for high-end applications such as security systems, medical imaging applications, automotive HMI, broadcasting, military, industrial process control system (IPC), advanced communication systems, portable solutions, Human Machine Interfaces and Home Automation applications.

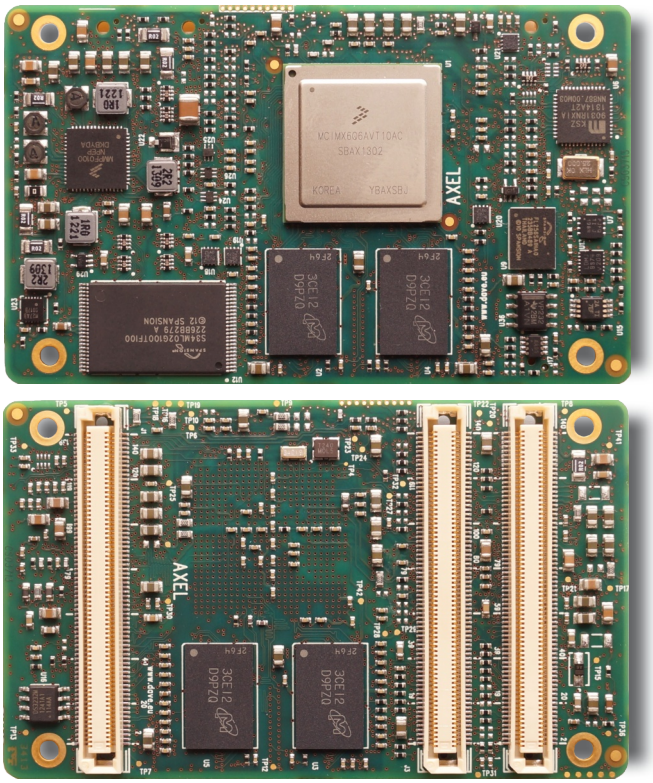


CPU	Freescale i.MX6 Solo/Dual/Quad ARM Cortex A9 MPCore @ 1.2 GHz
Supervisor	On-board power supply supervision and power sequencer Watchdog and RTC
Memory	
Cache	L1: 32Kbyte instruction, 32Kbyte data L2: Unified data/instruction, 1 MByte
SDRAM	Up to 4GB DDR3, x64 data bus width @ 533MHz
NOR	Bootable SPI NOR 16, 32, 64 MB
NAND	All sizes, on request
Interfaces (full-spec models) *	
LAN	Ethernet 10/100/1000 Mbps (PHY on board)
UART	up to 4x UART ports 4 wires up to 1x UART ports 8 wires
USB	1x 2.0 OTG port (PHY on board) 1x 2.0 Host port (PHY on board)
CAN	2x CAN (with PHY on board)
SDIO	up to 4x SDIO/MMC
Expansion Bus	PCIe 2.0, 5 Gbps Media Local Bus (6-pin, differential)
Storage	SATA II 3 Gbps
Audio	up to 3x I²S / SSI / AC97
Video Output	1x RGB Parallel port 24 bit 2x LVDS outputs 1x HDMI 1x MIPI DSI H264 decoder engine up to 1080p60
Video Input	1x RGB Parallel port 12 bit 1x MIPI CSI port H264 encoder engine up to 1080p30
Debug	JTAG IEEE 1149.1 Test Access Port
Other	up to 3x I²C channels up to 5x SPI channels GPIOs with interrupt capabilities 8x8 keypad
Mechanical	
Connectors	3x 140 pin 0.6mm pitch
Size	85mm x 50mm
Temperature	Commercial (0°C / +70°C) temperature range Industrial (-40°C / +85°C) temperature range
PSU	
Input	2.8 - 4.5V, on-board voltage regulation
Software	
Bootloader	U-Boot
Multitasking	Linux 3.x.x

Evaluation Kit

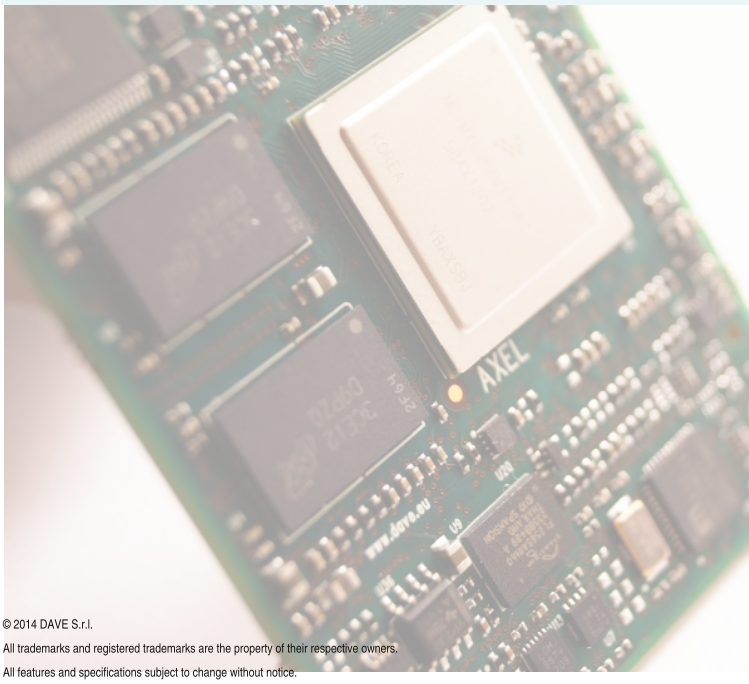
The AXEL ULTRA evaluation kit is available in a developement kit that includes a SOM, a carrier board and all accessories required for immediate start-up.

*: interface availability depends on pin multiplexing.
Please contact your local FAE.



Product code configurator *

Family	Processor	NOR flash	DDR3 RAM	NAND flash	Boot	Temp. range
DXU	A: i.MX6 Solo - 800M	0: No NOR	4: 4GB	0: No NAND	0: SPI	I: -40 / +85°C
	B: i.MX6 Solo - 1GHz	4: 16MB	2: 2GB	7: 128MB	Nor Boot	Industrial temp.
	D: i.MX6 Dual - 800M	5: 32MB	1: 1GB	8: 256MB		C: 0 / 70°C
	E: i.MX6 Dual - 1GHz	6: 64MB	9: 512MB	9: 512MB		Commercial temp.
	G: i.MX6 Quad - 800M			1: 1GB		
	H: i.MX6 Quad - 1GHz			2: 2GB		
	I: i.MX6 Quad - 1.2GHz					



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