Dave Embedded Systems - DBRF5110C Datasheet

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Understanding Embedded - Microcontroller, Microprocessor, FPGA Modules

Embedded - Microcontroller, Microprocessor, and FPGA Modules are fundamental components in modern electronic systems, offering a wide range of functionalities and capabilities. Microcontrollers are compact integrated circuits designed to execute specific control tasks within an embedded system. They typically include a processor, memory, and input/output peripherals on a single chip. Microprocessors, on the other hand, are more powerful processing units used in complex computing tasks, often requiring external memory and peripherals. FPGAs (Field Programmable Gate Arrays) are highly flexible devices that can be configured by the user to perform specific logic functions, making them invaluable in applications requiring customization and adaptability.

Applications of Embedded - Microcontroller,

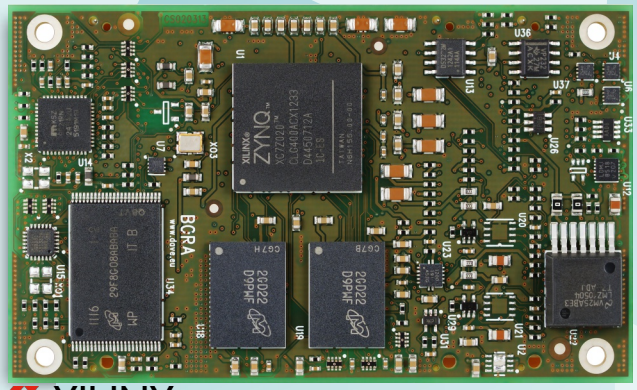
Details	
Product Status	Active
Module/Board Type	MPU, FPGA Core
Core Processor	ARM® Cortex®-A9, XC7Z020-3
Co-Processor	Artix-7
Speed	800MHz
Flash Size	1GB (NAND), 32MB (NOR)
RAM Size	1GB
Connector Type	3 x 140 Pins 0.6mm Pitch
Size / Dimension	-
Operating Temperature	0°C ~ 70°C
Purchase URL	https://www.e-xfl.com/product-detail/dave-embedded-systems/dbrf5110c

ULTRA LINE

BORA

XILINX ZYNQ XC7Z010/XC7Z020 CPU MODULE

- Unmatched performance thanks to dual ARM Cortex-A9 @ 800MHz
- All memories you need: on-board NOR and NAND Flash
- Enabling smarter system thanks to Artix-7 FPGA integrated on chip
- FPGA banks wide range PSU input from 1.2V to 3.3V
- Highest security and reliability: internal voltage monitoring and power good enable
- Reduced carrier complexity: dual CAN, USB, Ethernet GB and native 3.3V I/O
- Easy to fit thanks to its small form factor
- Accurate timing application thanks to on-board 5ppm RTC



BORA is the new top-class Dual Cortex-A9 + FPGA CPU module by DAVE Embedded Systems, based on the recent Xilinx Zynq XC7Z010/XC7Z020 application processor. Thanks to BORA, customers are going to save time and resources by using a compact solution that includes both a CPU and an FPGA, 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-perfomance 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.

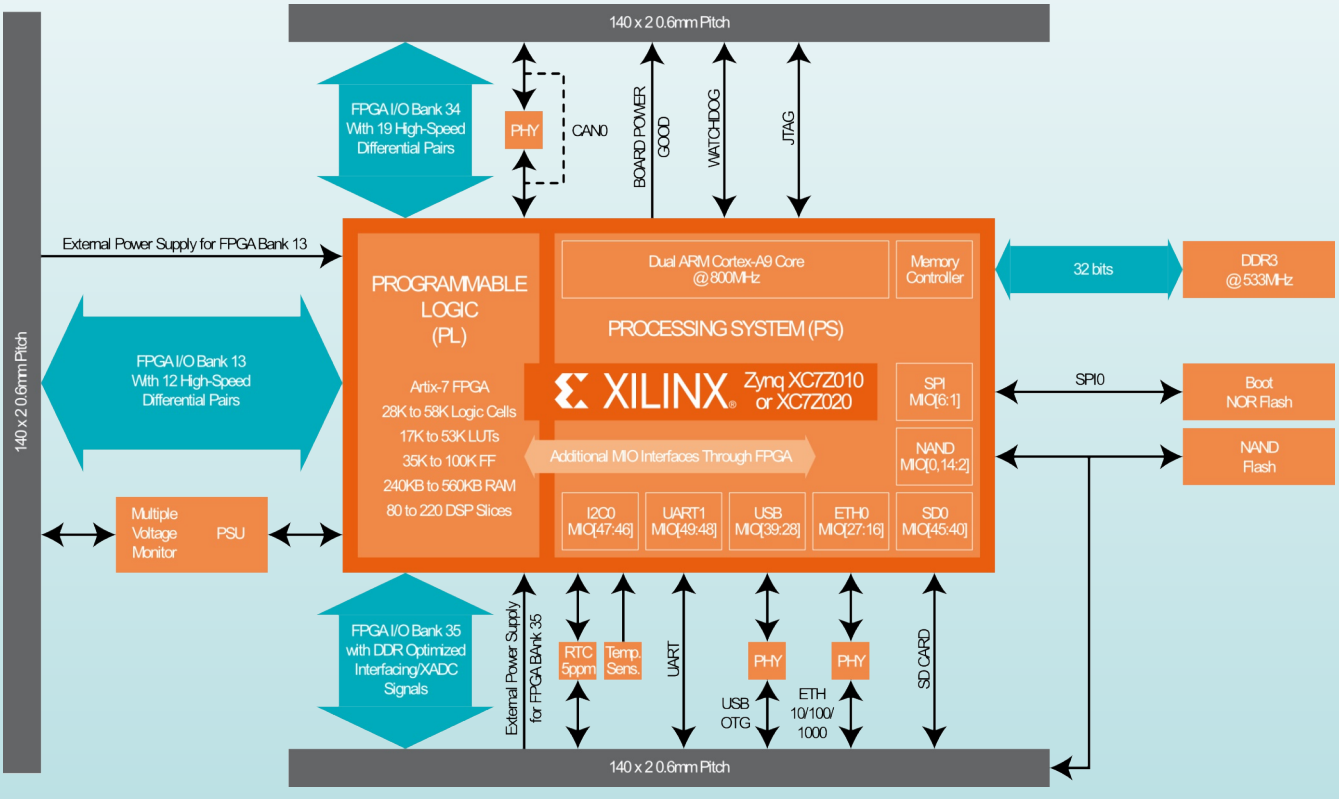
BORA offers great computational power, thanks to the rich set of peripherals, the Dual Cortex-A9 and the Artix-7 FPGA together with a large set of high-speed I/Os (up to 5GHz).

BORA enables designers to create rugged products suitable for harsh mechanical and thermal environments, allowing for the development of the most advanced and robust products.

Thanks to the tight integration between the ARM-based processing system and the on-chip programmable logic, designers are free to add virtually any peripheral or create custom accelerators that extend system performance and better match specific application requirements.

BORA is designed and manufactured according to DAVE Embedded Systems ULTRA Line specifications, in order to guarantee premium quality and technical value for customers who require top performances and flexibility.

BORA is suitable for high-end applications such as medical instrumentation, advanced communication systems, critical real-time operations and safety applications.



CPU	Xilinx Dual ARM Cortex-A9 Zynq XC7Z010/XC7Z020 @ 800MHz
Supervisor	On-board power supply supervision and power sequencer Watchdog and RTC

Memory

Cache	32Kbyte instruction, 32Kbyte data, 512Kbyte L2 for each core
SDRAM	Up to 1GB DDR3 @ 533MHz
NOR	Bootable SPI NOR 8, 16, 32 MB
NAND	All sizes, on request
SRAM	256 Kbyte

Interfaces (full-spec models) *

LAN	Ethernet 10/100/1000 Mbps Additional RMII interface
UART	up to 2x UART ports
USB	up to 2 x 2.0 OTG ports
CAN	up to 2 x CAN
Debug	JTAG IEEE 1149.1 Test Access Port CoreSight™ and Program Trace Macrocell (PTM)
Other	PC Card: 2 x SD/SDIO 2.0/MMC 3.31 compliant controllers up to 6 x I²C channels up to 6 x SPI channels GPIOs available

FPGA

Model	Artix-7
Logic Cells	28K to 56K
LUTs	17K to 53K
Flip Flops	35K to 100K
RAM	240KB to 560KB
DSP Slices	80 to 220
Differential Pairs	up to 34 differential pairs for high freq. interfaces

Mechanical

Connectors	3 x 140 pin 0.6mm pitch
Size	85mm x 50mm
Temperature	Commercial (0°C / +70°C) Industrial (-40°C / +85°C)

PSU

Input	3.3V, on-board voltage regulation

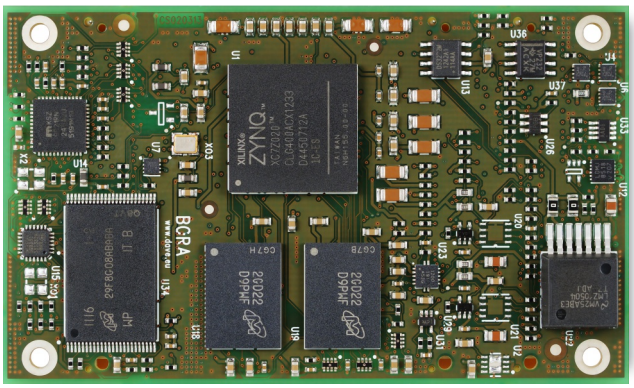
Software

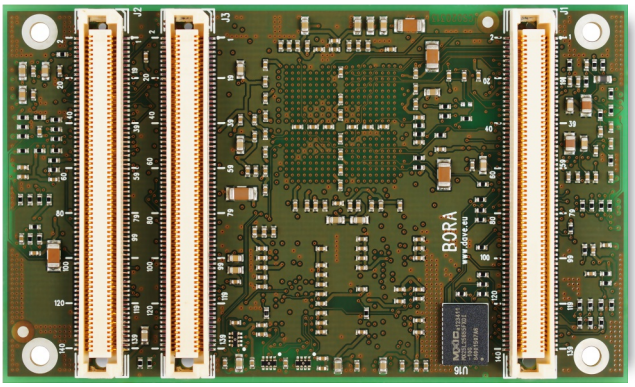
Bootloader	U-Boot
Multitasking	Linux 3.x.x

Evaluation Kit

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

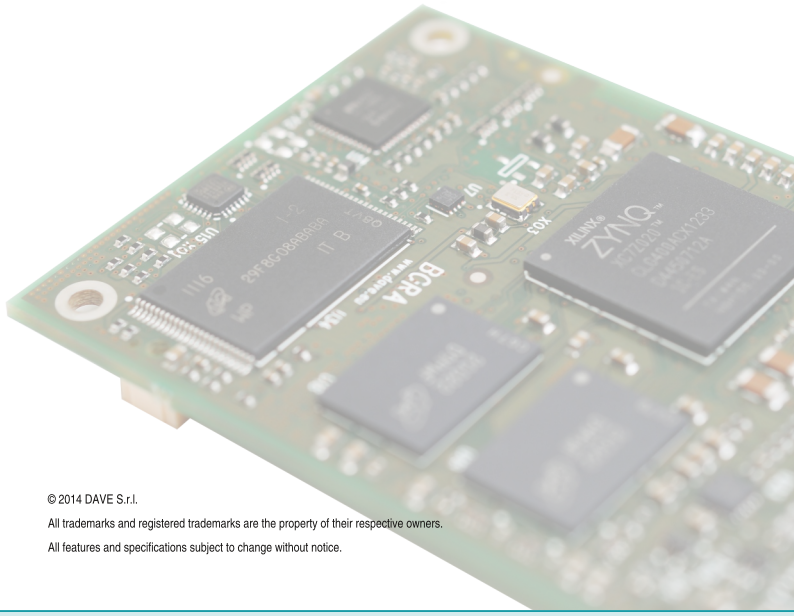
*: interface availability depends on pin multiplexing.
Please contact your local FAE.





Product code configurator *

Family	*Processor*	*NOR flash*	*DDR RAM*	*NAND flash*	*BOOT*	*Temp. range*
DBR	A: XC7Z010-1 B: XC7Z010-2 C: XC7Z010-3 D: XC7Z020-1 E: XC7Z020-2 F: XC7Z020-3	0= 0MB 3= 8MB 5= 32MB 6= 64MB	1= 1GB 9= 512MB	0= 0MB 1= 1024MB 2= 2048MB 7= 128MB 8= 256MB 9= 512MB	0 = Nor Boot	C: Commercial temp. 0 / +70°C I: Industrial temp. -40 / +85°C



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