

## HM22 Module

ARM9 400MHz Tripleboot with Linux and WinCE 6.0

### ARM9 – FPGA

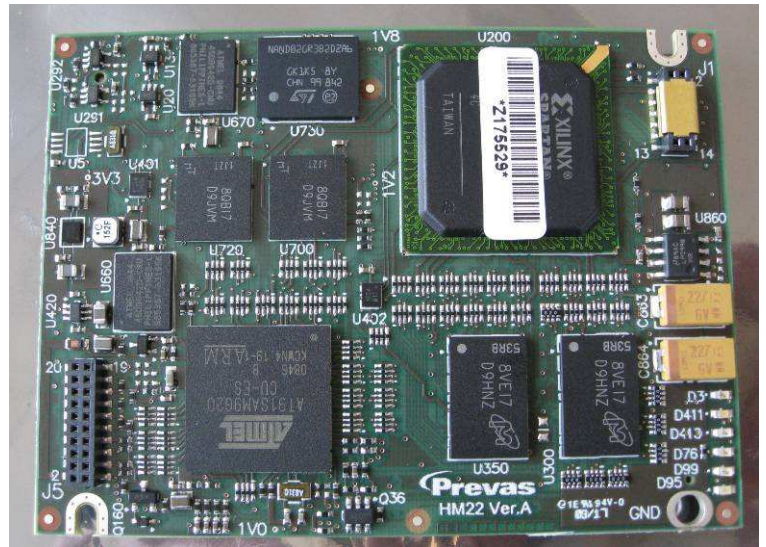
The HM22 is using a new Atmel AT91SAM9G20 computer, running at 400MHz together with a Xilinx Spartan 3A 1400 kgates FPGA.

Configurable with up to: 512MB NAND Flash, 8MB SPI, 128MB SDRAM and 512MB DDR2 memory.

A high priority is that the HM22 module fit the 75 x 55 mm size and that it is pin-compatible with our earlier released HM20.

### Triple Boot – Flexible platform

The use of shared memory makes it possible to boot either in Linux, Windows CE 6.0, or in a version with FPGA only - which easily supports MicroBlaze.



### 1.8 – 3.3V Extended logic

The new ARM processor has its logic level based on 1.8V and the FPGA IO-interface has selectable voltage levels between 1.8V and 3.3V.

- General purpose CPU including RAM and FLASH
- 10/100 Mbps Ethernet interface
- 4 UART's with TTL signal levels
- Up to 40 ARM GPIO pins + 89 FPGA GPIO with interrupt capability
- I<sup>2</sup>C and I<sup>2</sup>S interfaces
- SPI interface with a set of dedicated chip-select lines
- 2 x USB host interface and USB device interface
- Interface for TFT display.  
LVDS 95Mpixels ~1280x1024@60Hz or Full HD1080i@30Hz
- Real time clock, Watchdog and power-monitoring facility
- Safe storage for serial number and MAC address
- High-speed interface for external units 620Mbit on each of 34 pairs
- FPGA external to the CPU for customer specific extensions  
32 bit, 66 MHz interface with possibility for burst mode
- Main board id reader for low-level configuration
- Single 3.3V supply – 1.8V internal logic
- 4-10W consumption – 1.5W in ARM only version
- Industrial tested range -40 to +85 °C

Focus has been put on low EMI design for a final product to comply with:

- Medical electrical equipment
- EMC requirements
- Telecommunication standards

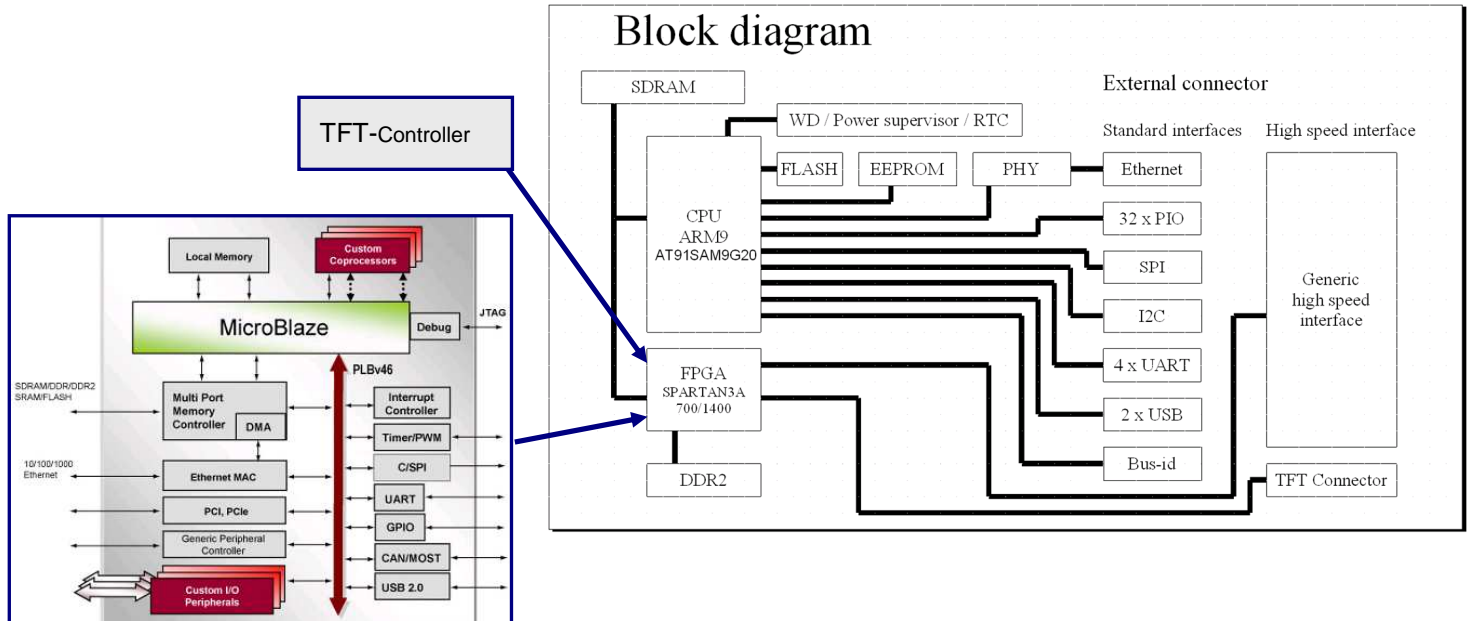
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## Customize HM22 to fit your needs

### Flexible HW selection allows for cost or performance

Now that both the FPGA and the ARM9 share the same bus interface, it is possible to select between the two chips and leave one out in order to have a tight fit module, or to go for both of them to get the full advantage of all specifications.



HM22 Types	ARM+ FPGA memory FLASH NAND   SPI		ARM memory SDRAM (16bit + 16bit bus)	FPGA Spartan 3A FG484 (kGates)	FPGA memory DDR2 (16bit + 16bit bus)			Cost price @ 1k (in rate compared to A1)
<b>ARM Only solutions</b>								
A1	256MB	8MB	32MB	-	-	-	-	1.00
A3	512MB	8MB	64MB	64MB	-	-	-	1.11
<b>FPGA Only solutions</b>								
F1	-	8MB	-	700	-	-	-	1.02
F4	512MB	8MB	-	700	128MB	128MB	-	1.20
F5	512MB	8MB	-	700	256MB	256MB	-	2.57
F6	-	8MB	-	1400	-	-	-	1.13
F9	512MB	8MB	-	1400	128MB	128MB	-	1.31
F10	512MB	8MB	-	1400	256MB	256MB	-	2.68
<b>ARM + FPGA solutions</b>								
A1F1	256MB	8MB	32MB	700	-	-	-	1.23
<b>A2F2*</b>	<b>256MB</b>	<b>8MB</b>	<b>32MB</b>	<b>700</b>	<b>64MB</b>	-	-	<b>1.31</b>
A3F4	512MB	8MB	64MB	700	128MB	128MB	-	1.43
A3F5	512MB	8MB	64MB	700	256MB	256MB	-	2.80
A1F6	256MB	8MB	32MB	1400	-	-	-	1.33
<b>A3F9*</b>	<b>512MB</b>	<b>8MB</b>	<b>64MB</b>	<b>1400</b>	<b>128MB</b>	<b>128MB</b>	-	<b>1.53</b>
A3F10	512MB	8MB	64MB	1400	256MB	256MB	-	2.90

\* **A2F2** and **A3F9** are to compare with HM20 T3 and T5, and will be produced and held in stock. All other types can be made on request.