



# STA2059

## IN VEHICLE NAVIGATION/TELEMATICS SYSTEM ON CHIP

DATA BRIEF

### 1 FEATURES

- ARM720 MCU
  - 32-bit RISC MCU with 3-stage pipeline.
  - Max. CPU frequency ~ 68 MHz.
  - Fully instructions compatible with the ARM7 family of processors.
  - 8 KByte Instruction + Data cache, 4-way set-associative.
  - Write buffer de-coupling CPU from system memory during write operations.
  - MMU for virtual to physical address mapping and memory protection.
- Memories
  - 16 KBytes Program RAM Memory
  - 4 KBytes on-chip boot ROM
  - External SDRAM Interface for up to 128 Mbytes SDRAM.
  - External Memory Interface (EMI) for up to 8 Mbytes SRAM, Flash, ROM.
  - ATAPI interface supporting PIO4 mode
- Nested interrupt controller
  - Fast interrupt handling with multiple vectors
  - 32 vectors with 16 IRQ priority levels
  - 2 maskable FIQ sources
- Clock, Reset and Supply Management
  - 3.3 V  $\pm 5\%$  operating supply range for Input/Output, AD, ADAC.
  - 1.8 V  $\pm 5\%$  operating supply range for core supply, PLL, RTC and 32 kHz osc.
  - Internal system clocks generated by fully internal PLL
  - Power management providing different operating modes: RUN, SLEEP, STOP, STANDBY.
- 35 I/O ports
  - 35 multifunctional bidirectional I/O lines
  - 5 ports with interrupt capability
- 3 Timers
  - Two 16-bit programmable Timer modules with prescaler ( $f_{APB}$  divided by 1 to 256) driv-

Figure 1. Package



Table 1. Order Codes

Part Number	Package
STA2059	PQFP208

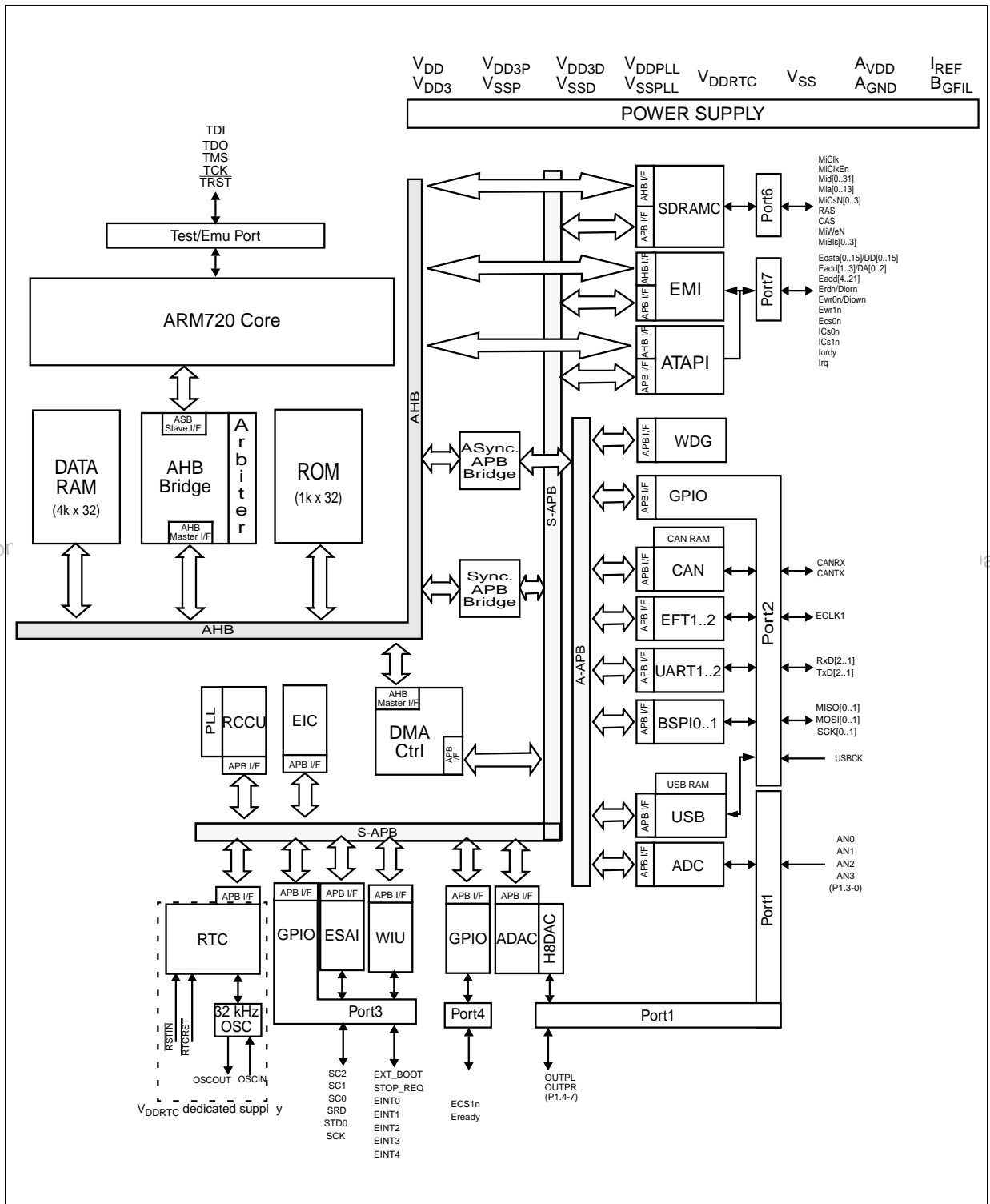
en from internal selectable clock (oscillator or CPU clock), output compare and input capture functions.

- 16-bit Watchdog Timer with 8-bit prescaler
- Digital Audio
  - 24-bit Audio Digital to Analog converter (ADAC) with digital volume control
  - Enhanced Serial Audio Interface (ESAI) supporting I2S format
- 6 Communications Interfaces
  - USB slave interface 1.1 compliant
  - C-CAN module compliant with the CAN specification V2.0 part B (active).
  - Two High-Speed Universal Asynchronous Receiver Transmitter (UART) for full-duplex asynchronous communication.
  - Two Buffered Serial Peripheral Interfaces (BSPI) for full-duplex, synchronous, communications with external devices, master or slave operation.
- A/D Converter
  - 11-bit resolution Analog/Digital Converter supporting 4 multiplexed inputs at up to 950 Hz sampling rate.
- Development Tools Support
  - 5-pin JTAG port (IEEE 1149.1 Standard)
- Package
  - 208-pin PQFP208 package.
  - $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$  operating temperature range.

## 2 SYSTEM BLOCK DIAGRAM

The Figure 2 gives an overview of the complete processor, showing how ARM720T microcontroller and their peripherals are interfaced.

Figure 2. Block Diagram



**Table 2. Revision History**

Date	Revision	Description of Changes
September 2004	1	First Issue

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