



THE DATASHEET OF STA2051





32-bit single chip baseband controller for GPS and telematic applications

Data Brief

Features

- Suitable for automotive applications
 - ARM7TDMI 16/32 bit RISC CPU based host microcontroller.
 - Complete embedded memory system:
 - Flash 256 KB + 16 KB (100K erasing/programming cycles)
 - RAM 64 KB
 - External memory interface provides glueless support for up to four banks of external SRAM, Flash, ROM.
 - 12 channel GPS correlation DSP:
 - no TCXO required
 - RTCA-SC159 / WAAS / EGNOS support
 - GPS performance
 - accuracy: stand alone <30m; differential <1m; surveying <1cm
 - time to first fix: autonomous start 90s; cold start 45s; warm start 7s; obscuration 1s.
 - CMOS M8T (0.18 μ m) technology.
 - -40°C to 85°C operating temperature range.
 - Packaged in TQFP 64-pin or 144-pin
 - Power supply:
 - 2.7V to 3.6V operating supply range for input/output periphery
 - 3V to 3. V operating supply range for A/ D Converter reference
 - 1.8V operating supply range for core supply provided either by internal voltage regulator with external stabilization capacitor, or by external supply for higher power efficiency.
 - 0-66MHz internal clock frequency managed by a reset and clock control unit; the unitisable to provide low power modes (Wait, Slow, Stop, Standby) and to generate the internal clock from the external reference through integrated PLL.
 - 48 programmable general purpose I/O, each pin programmable independently as digital input or digital output; 40 (30 in TQFP64) are multiplexed with peripheral functions; 16 can generate an interrupt on input level/transition
 - Real time clock module with 3 2 kHz low power oscillator and separate power supply to continue running during stand-by mode.
- The image shows two square Quad Flat Pack (TQFP) integrated circuit packages. The package on the left is labeled 'TQFP64' and has 64 pins. The package on the right is labeled 'TQFP144' and has 144 pins. Both packages are shown from a top-down perspective, highlighting their square shape and the arrangement of pins around the perimeter.
- 16-bit watchdog timer with 8 bits prescaler for system reliability and integrity.
 - CAN module compliant with the CAN specification V2.0 part B (active). The bit rate can be programmed up to 1 Mbaud.
 - Four 16-bit programmable timers with 7 bit prescaler, up to two input capture/output compare, one pulse counter function, one PWM channel with selectable frequency each.
 - 4 channels 12-bit sigma-delta analog to digital converter, single channel or multi channel conversion modes, single-shot or continuous conversion modes, sample rate 1KHz (4 KHz when single channel), conversion range 0-2.5V.
 - Three serial communication interfaces (UART) allow full duplex, asynchronous, communications with external devices, independently programmable TX and RX baud rates up to 625K baud.
 - One UART adapted to suit smart card interface needs, for asynchronous SC as defined by ISO 7816-3; it includes SC clock generation..
 - Two serial peripheral interfaces (SPI) allow full duplex, synchronous communications with external devices, master or slave operation, max baud rate: 8Mb/s. One SPI may be used as multimedia card interface.
 - Two I²C interfaces provide multi-master and slave functions, support normal and fast I²C mode (400 kHz), 7/10 bit addressing modes. One I²C interface is multiplexed with one SPI, so either 2xSPI+1xI²C or 1xSPI+2xI²C may be used at a time.
 - USB unit V1.1 compliant, software configurable end point setting, USB Suspend/Resume support. (TQFP144 only)
 - High Level Data Link Controller (HDLC) unit supports full duplex operating mode, NRZ, NRZI, FM0 and MANCHESTER modes, internal 8bit Baud Rate Generator.

1 System block and pin connection diagrams

Figure 1. System block diagram

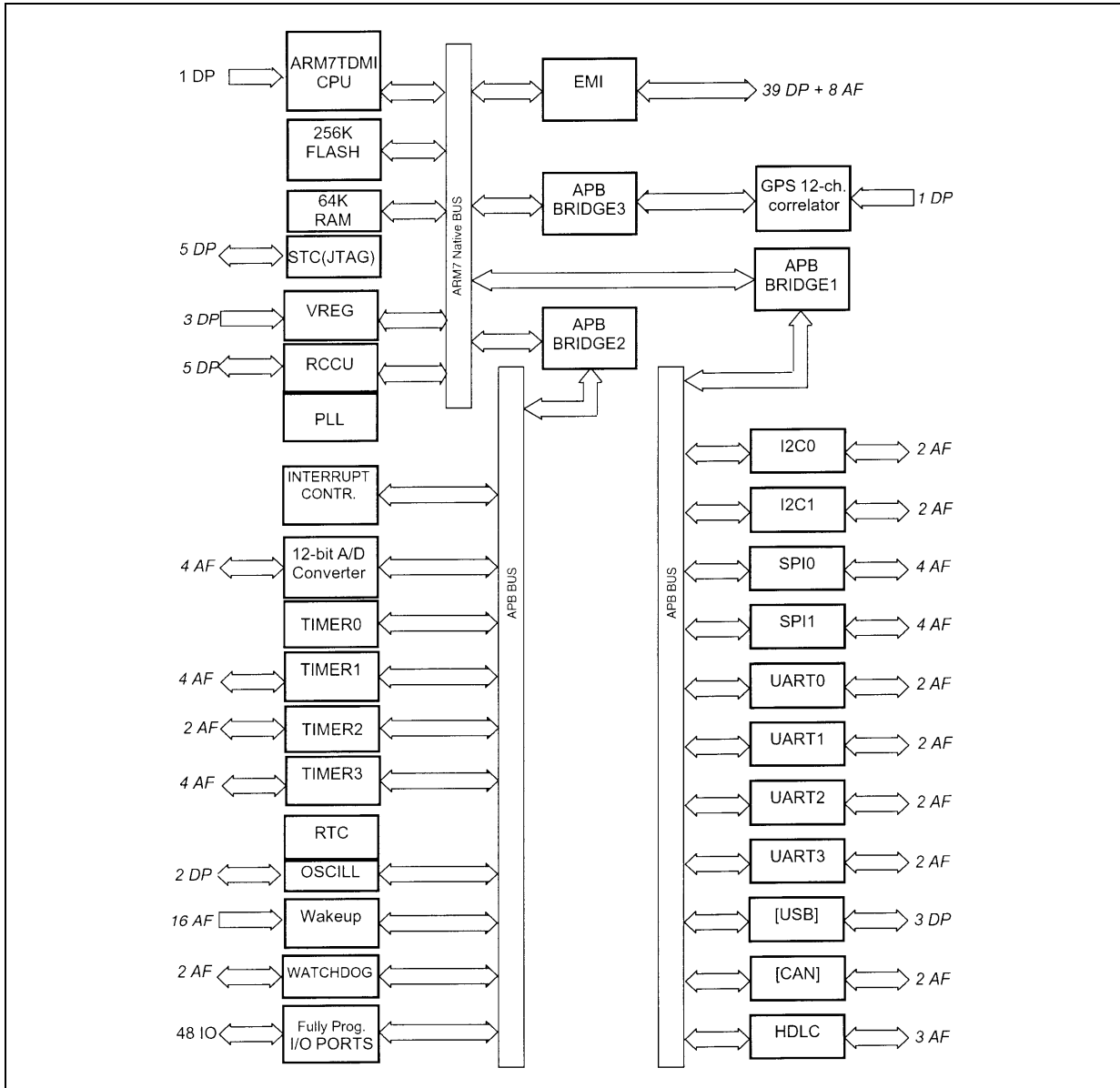


Figure 2. TQFP144 pin connection diagram (top view)

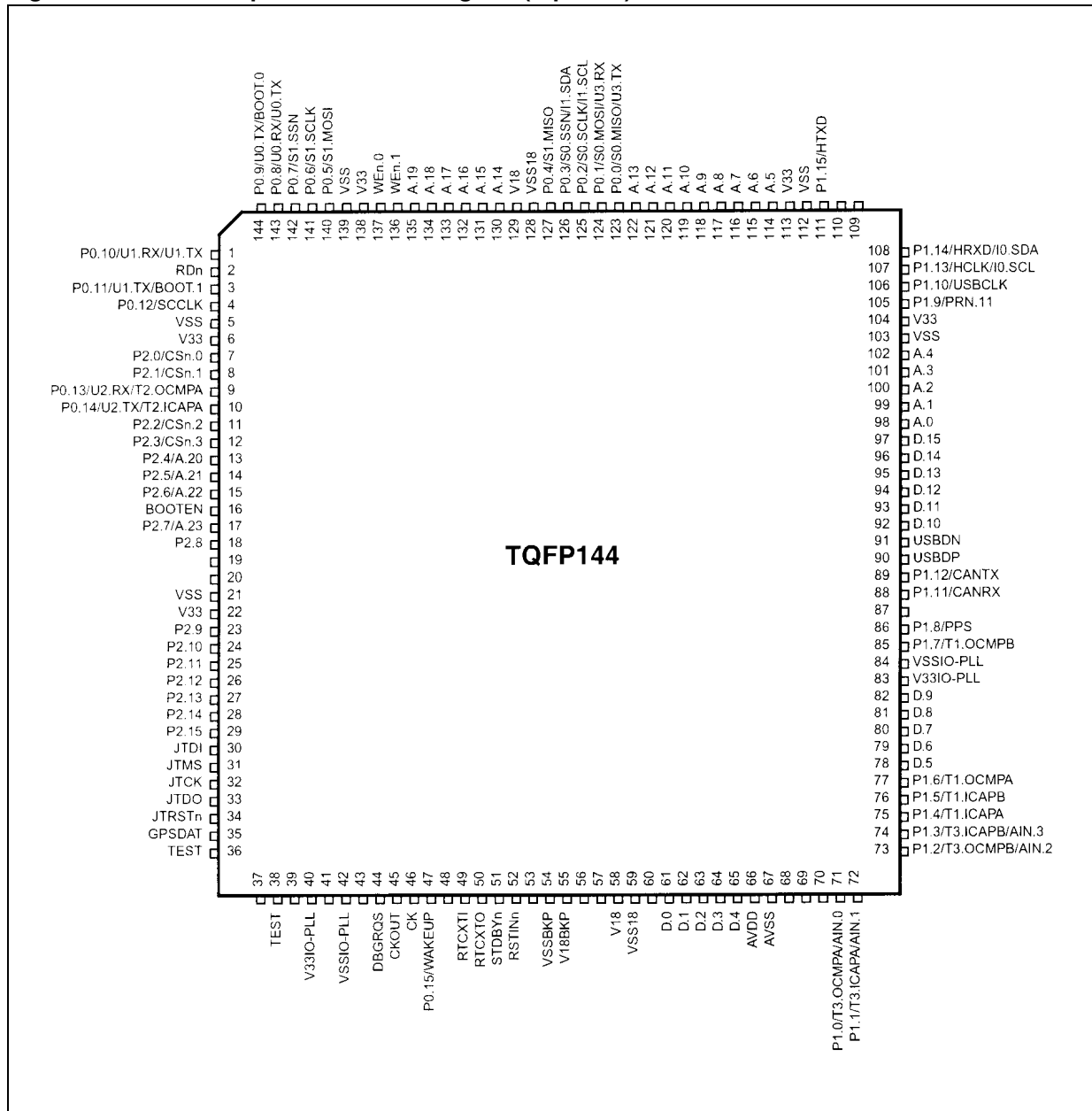
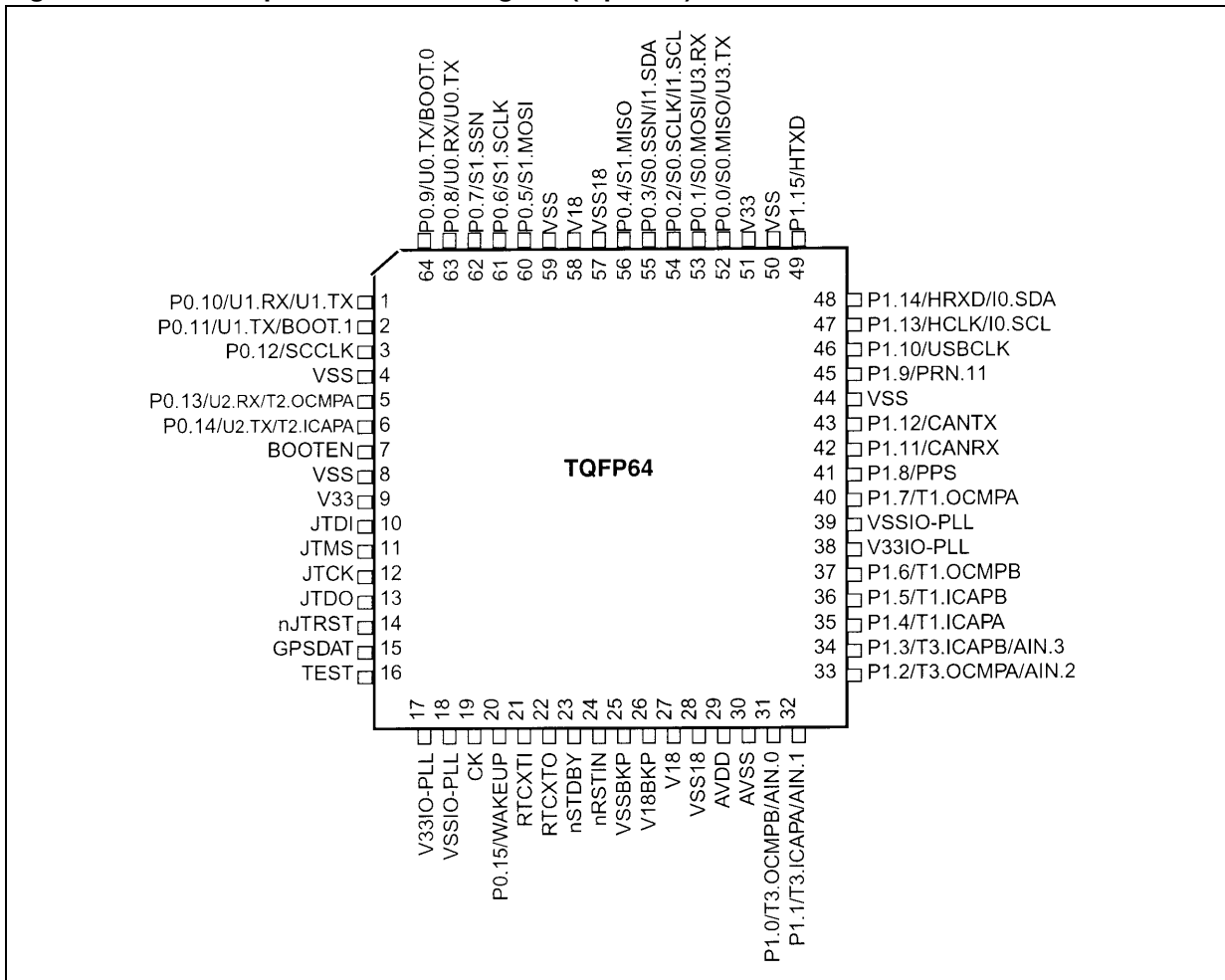


Figure 3. LQFP64 pin connection diagram (top view)



2 Ordering information

Table 1. Device summary

Order code	Package	Packing
STA2051	TQFP64	Tray
STA2051TR	TQFP64	Tape and reel
STA2051E	TQFP144	Tray
STA2051ETR	TQFP144	Tape and reel
E-STA2051	TQFP64	Tray
E-STA2051TR	TQFP64	Tape and reel

3 Revision history

Table 2. Document revision history

Date	Revision	Changes
24-Sep-1994	1	Initial release.
25-Jan-2004	2	Added a new feature (first bullet).
05-Dec-2008	3	Reformatted document. Updated Section 2: Ordering information .

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