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 µm) 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.
- 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 continuous conversion modes, sample rate1KHz (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+1xl²C 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, FMO 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>
<thead>
<tr>
<th>Order code</th>
<th>Package</th>
<th>Packing</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA2051</td>
<td>TQFP64</td>
<td>Tray</td>
</tr>
<tr>
<td>STA2051TR</td>
<td>TQFP64</td>
<td>Tape and reel</td>
</tr>
<tr>
<td>STA2051E</td>
<td>TQFP144</td>
<td>Tray</td>
</tr>
<tr>
<td>STA2051ETR</td>
<td>TQFP144</td>
<td>Tape and reel</td>
</tr>
<tr>
<td>E-STA2051</td>
<td>TQFP64</td>
<td>Tray</td>
</tr>
<tr>
<td>E-STA2051TR</td>
<td>TQFP64</td>
<td>Tape and reel</td>
</tr>
</tbody>
</table>
## Revision history

Table 2. Document revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-Sep-1994</td>
<td>1</td>
<td>Initial release.</td>
</tr>
<tr>
<td>25-Jan-2004</td>
<td>2</td>
<td>Added a new feature (first bullet).</td>
</tr>
</tbody>
</table>
| 05-Dec-2008| 3        | Reformatted document.                                                   
|            |          | Updated *Section 2: Ordering information*.                              |