

# SiRFtitan Navigation Processor

## PRODUCT OVERVIEW



SiRFtitan is a powerful GPS and multi-functional processor designed for performance navigation. With an advanced ARM11 core, a high-speed DSP, and hardware GPS accelerators, SiRFtitan is the most powerful navigation processor available today. SiRFtitan provides all the necessary ingredients and flexibility for developing premium navigation infotainment systems. SiRFtitan further extends the SiRF advantages of faster integration, higher performance, and lower system cost.

## FEATURES

### Core Execution Features

#### RISC Core

- Up to 600 MHz ARM1136EJ<sup>1</sup>
- Up to 600 MHz integrated vector floating point unit for 3D acceleration<sup>1</sup>
- 128 KB level 2 cache

#### DSP Core

- 250-300 MHz enhanced DSP for video and GPS<sup>1</sup>
- Full DMA support
- Direct control to UART, USP, GPIO, and other peripheral interfaces

#### Advanced Autonomous GPS

- 40+ channels
- Up to -160 dBm sensitivity
- Up to 2,000,000 effective correlators

<sup>1</sup>. Clock speeds may vary

### Memory Subsystem

- 64-bit 250-325 MHz system bus with 16 DMA channels
- Up to 1.6 GB/s bandwidth
- Supports low-power Mobile-SDR and Mobile-DDR
- Advanced 2-dimensional DMA available for LCD and DSP

### I<sup>2</sup>C

- Two I<sup>2</sup>C interfaces
- 16 Byte FIFOs

### UART

- Three UART ports
- Full-duplex 64 byte FIFOs on UART0
- Full-duplex 32 byte FIFOs on UART1, UART2

### Universal Serial Ports

- Three USPs
- Operates in asynchronous, synchronous master, and synchronous slave modes
- Compatible with I<sup>2</sup>S slave mode

### AC97/I<sup>2</sup>S

- Supports AC97 specification 2.2
- Supports both master and slave modes in I<sup>2</sup>S
- 5.1 channel I<sup>2</sup>S audio data output

### ROM Interface

- Supports fixed-latency and variable-latency ROM / SRAM devices
- Supports access to 8-bit / 16-bit / 32-bit ROM/SRAM devices

## Peripherals

### SDIO Standards

- Supports WiFi and Bluetooth

### SPI

- Supports both master and slave mode
- 32 byte FIFOs
- MSB/LSB configurable
- Supports connection to T-DMB, DVB-T/H baseband chipsets

## FEATURES

### External Interfaces

#### NAND Storage

- Supports direct boot from NAND
- 8 / 16-bit large-page NAND with ECC
- Supports SmartMedia cards
- Dedicated DMA channels

#### SD / MMC/MMC+ / CE-ATA

- Two fully concurrent interfaces with DMA
- Supports 1, 4, 8 bit modes
- Up to 52 MHz frequency and 25 MB/s read
- Supports both SD standard and secure SD specifications
- MMC specifications 3.31 and 4.0
- CE-ATA Digital Protocol 1.0
- SDHC

#### ATA-4 Storage

- Supports 1.8" and 2.5" HDD
- UDMA2 with up to 33 MB/s

#### USB Connectivity

- Host/slave with dynamic switching
- Transfer rate up to 480 Mbps
- Supports low pin interface (ULPI)

### Graphics & Multimedia

#### LCD/2D/3D

- Up to 800 x 480 (WVGA) resolution in 32-bit color
- Four hardware overlay layers
- Hardware RGB to YUV conversion (8 / 16-bit 4:2:2 format)
- SiRF 2D BitBLT engine

#### Video Input Port

- Accepts input from CMOS, CCD imaging sensors and DVD decoders
- Compatible with 8/16 bit CCIR601/656 and RGB 565 formats
- 1/2, 1/4, 1/8 down sampling

#### Video Processing

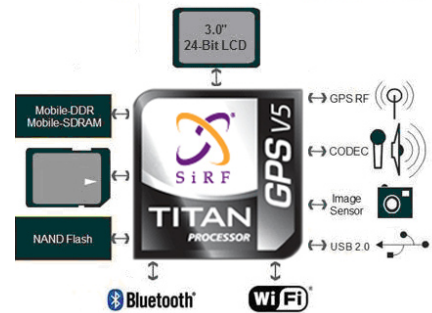
- YUV 4:2:0 and 4:2:2 to RGB conversion
- Hardware de-interlacer
- Video scaler and resizing function

#### Packaging

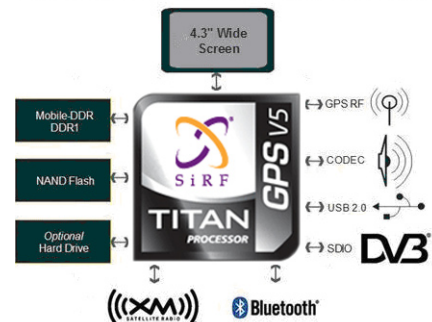
- 16 X 16 TFBGA-477 with .65 mm pitch

## CONFIGURATION EXAMPLES

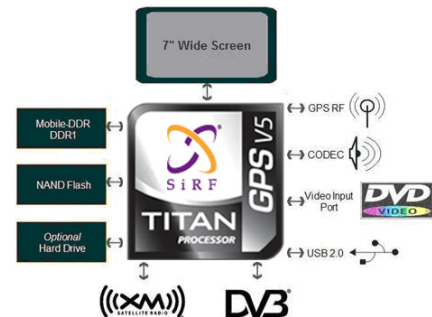
### Mobile Navigation & Communication



### Mobile Navigation & Entertainment



### Vehicle Navigation & Entertainment



## ORDERING INFORMATION

For more information about this and related products, contact your SiRF representative, or call our sales force at (1) 408) 467-0410, or visit [www.sirf.com](http://www.sirf.com).

For the location of your nearest authorized SiRF distributor, visit [www.sirf.com](http://www.sirf.com).

## WORLDWIDE SALES OFFICES

### North America

**Corporate HQ**  
(1) (408) 467-0410  
✉ [Sales@sirf.com](mailto:Sales@sirf.com)

### Europe

**United Kingdom**  
(44) (1344) 668390  
✉ [SalesUK@sirf.com](mailto:SalesUK@sirf.com)

**Germany**  
(49) (81) 529932-90  
✉ [SalesGermany@sirf.com](mailto:SalesGermany@sirf.com)

### Asia Pacific

**China**  
(86) (21) 5854-7127  
✉ [SalesChina@sirf.com](mailto:SalesChina@sirf.com)

**Taiwan**  
(886) (2) 8174-8966  
✉ [SalesTaiwan@sirf.com](mailto:SalesTaiwan@sirf.com)

**Japan**  
(81) (44) 829-2186  
✉ [SalesJapan@sirf.com](mailto:SalesJapan@sirf.com)

**India**  
(91) (120) 4696000  
✉ [SalesIndia@sirf.com](mailto:SalesIndia@sirf.com)

**South Korea**  
(82) (2) 545-2562  
✉ [SalesKorea@sirf.com](mailto:SalesKorea@sirf.com)