

# Paradiso 1T FS1032

Mobile TV System-in-Package for T-DMB, DAB and DAB-IP



Compact footprint - 9.0 x 9.0 x 1.3 mm

## APPLICATIONS

- Mobile phone with TV
- Personal media player
- Automotive infotainment system
- Mobile/portable TV terminal
- Portable DVD player
- Mobile TV dongle
- Mobile TV enabled laptop/PC

## OVERVIEW

**Paradiso 1T is a complete T-DMB/DAB receiver, integrating RF tuner and baseband functions. It enables mobile TV and data services on handheld devices for worldwide markets, with industry-leading performance (T-DMB sensitivity better than -101dBm), size and cost. By combining RF tuner and baseband functionality, Paradiso 1T delivers a highly integrated mobile TV solution, simplifying PCB design and interfacing challenges.**

Paradiso 1T supports all modes of DAB, T-DMB and DAB-IP, including Chinese, European and Korean variants. It is designed to be used with a host media processor to deliver a complete system solution.

Paradiso 1T offers **unmatched flexibility**, with features such as advanced Doppler and multipath channel performance, integrated RAM, variable IP stream rates, support for conditional access, and a comprehensive set of peripheral interfaces, simplifying system integration.

**Host processor interfaces** include SPI, SDIO and USB. The software data plane supports streaming outputs for TS, FIC, MSC, PSI/SI and IP data payloads. The software control plane supports remote boot and optimized baseband control. All interfaces are flexible to facilitate custom host communication protocols. Paradiso 1T can boot, stream data and be controlled through any of the above host processor interfaces, simplifying design and deployment; additional boot and control options are available through UART and SCP.

Paradiso 1T uses a 1.2 V core **power supply**, and 2.5 - 3.3 V for I/O.

## KEY FEATURES

- Advanced RF and baseband receiver solution for all T-DMB, DAB and DAB-IP applications
- 9 x 9 x 1.3 mm ultraslim 165-ball VFPGA package for slim-phones and low-profile devices
- Low power operation: 190 mW (T-DMB)
- High RF performance: -101 dBm sensitivity, > 45 dB ACR
- Supports numerous DMB variants including T-DMB, DMB, DAB-IP and BT Movio
- Enhanced packet and enhanced data group modes
- PID filtering with additional IP filtering
- Flexible hardware-assisted DSP architecture
- Decodes multiple video, audio and data services up to maximum 1.8 Mbps (T-DMB)
- Programmable communication processor has capacity for the most demanding digital receiver standards
- Flexible transport interface for data transfer to multiple video decoders
- Data service support to the host processor
- Supplied complete with DeNiro host drivers and Pacino embedded firmware
- Full evaluation systems available
- Wide temperature range:
  - Operation -40 to +85 °C;
  - Storage -60 to +125 °C
- Full RoHS compliance

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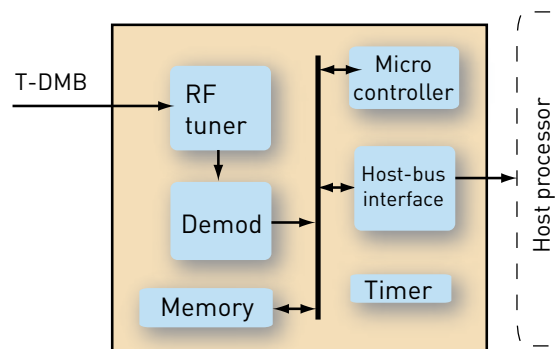
## INTEGRATED RF/BASEBAND SOLUTION

Paradiso 1T has been designed as a complete mobile TV receiver solution. The chip provides industry-leading performance for DAB-based mobile TV solutions, with industry-leading sensitivity, power consumption, footprint and cost.

## SUPPORTED STANDARDS

Paradiso1T is compliant with the following mobile TV/radio standards and guidelines:

- ETSI EN 300 401 (Eureka-147 DAB)
- ETSI TS 102 427 (T-DMB)
- ETSI ES 201 735 (DAB IP)



Paradiso 1T block diagram

## DATA INTERFACES

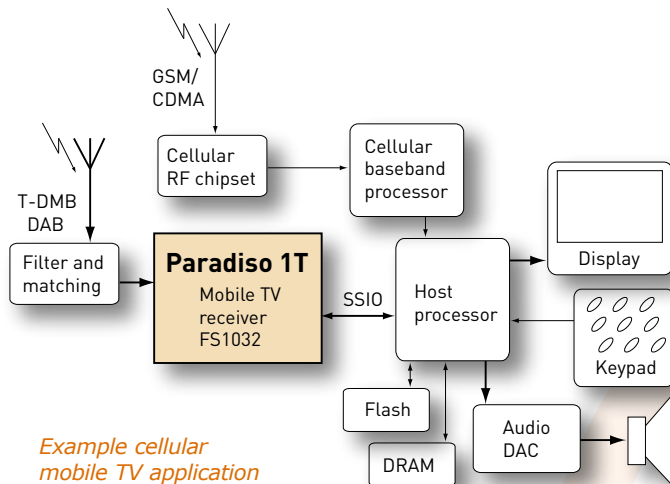
Host processor interfaces include SPI, SDIO and USB for both control plane and bulk data plane. Bulk data output supports FIC, MSC, TS, PSI/SI information and IP.

- SDIO: Secure digital I/O interface to media processor, at up to 100 Mbps. Supports all SPI, 1-bit and 4-bit device modes
- SSI: Dual high-speed synchronous serial channels to media processor, each up to 24 Mbps transfer rate, with master/slave capability.
- USB: Full-speed device or host controller, up to 12 Mbps. with embedded buffer and ancillary functions.

## CONTROL INTERFACES

- SCP: Dual serial interfaces to control integrated RF tuner and also interface to media processor
- UART: Standard 16550-compatible interface up to 1.5 Mbaud
- GPIO: General purpose I/O multiplexed with other nonfunctional pins to reduce pinout

Paradiso 1T can boot, stream data, and be controlled through any of SPI, SDIO and USB - simplifying design and deployment. Additional boot and control options are available through the UART and SCP interfaces.



Example cellular mobile TV application

Actual size

165 VFBGA, 0.5 mm pitch

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