

Jupiter 3 FS4023

Reference platform for radio with DAB/FM/iPod docking



APPLICATIONS

- Audio systems
- iPod docking station
- Portable (kitchen) radio
- Clock radio

OVERVIEW

Jupiter 3 is a fully-qualified reference design for radio applications with DAB, FM-RDS and iPod docking/video output. Based on the Venice 5 FS2025 DAB/FM module, Jupiter 3 provides a flexible architecture, enabling OEMs to use the design either as-is, modified, or as a starting point to speed development of custom products.

Jupiter 3 provides a fast-track route for packaging the latest audio technology using the smallest possible bill-of-materials and with the shortest time-to-market. The platform is production-ready and needs only industrial design tooling to finish off a complete high-quality audio system.

SPECIFICATION

DAB:	Sensitivity	-96 dBm (typical)
	Tuning range	174 - 240 MHz
FM:	Sensitivity	-108 dBm (typical)
	Tuning range	89.5 to 108 MHz
THD:	Stereo	< 3%
	Mono	< 2%
Channel separation		> 35 dB
IF rejection		> 46 dB
Image rejection		> 20 dB
Audio power output (RMS)		2 x 1 W

iPod CONTROL

iPod docking is an integral part of Jupiter 3's design. In iPod control mode, the platform directly communicates with and controls an iPod. This enables manufacturers to produce low-cost iPod docking systems with DAB/FM functionality.

Jupiter 3 also includes the iPod authentication coprocessor, enabling video output from all models of iPod with video facilities.

Controls include:

- Track: next/previous
- Track: fast forward/fast rewind
- Album: next/previous
- Playlist: next/previous
- Mute
- Backlight control
- Set alarm to wake to iPod
- Set sleep duration for iPod
- Video out (s-video or composite)

The docking connector also provides power for iPod charging.

Jupiter 3 has been designed to fully utilise capabilities of the Venice 5 module so that minimal additional components are required to implement iPod control functionality.

PCB ARRANGEMENT

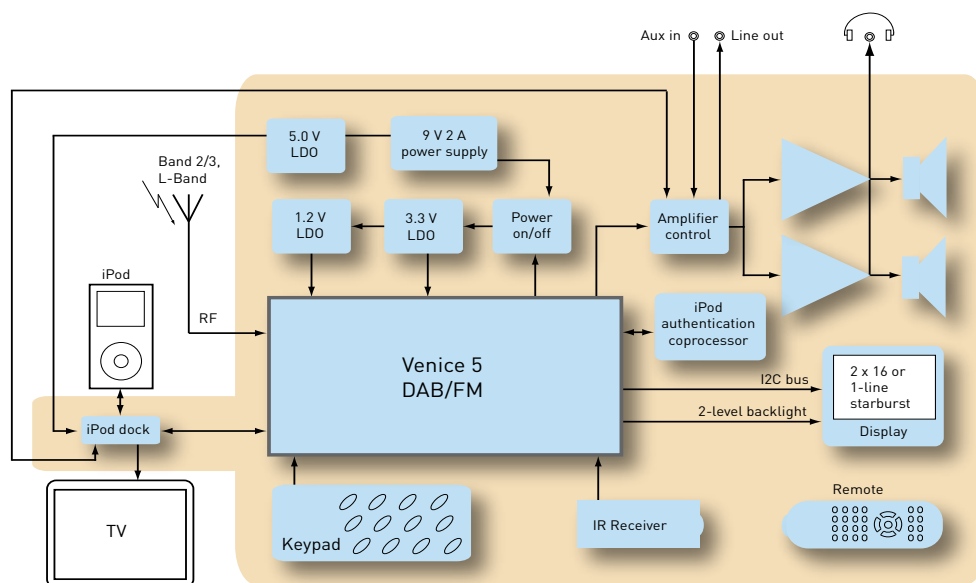
The reference design comprises two PCBs. The main PCB is a low-cost 2-layer board, approximately 100 x 80 mm in size. The second PCB is the user interface (UI) PCB, which carries the display and keyboard components. The options available for the UI PCB are:

Option	Display	Keyboard
Simple portable/clock radio	1-line, 8 x starburst display (optional icons)	Simple user interface with 8 or 9 tact switches
Standard portable/clock radio	2-line, 16-character, dot matrix display	12 tact switches (optionally, 2 x rotary encoders)



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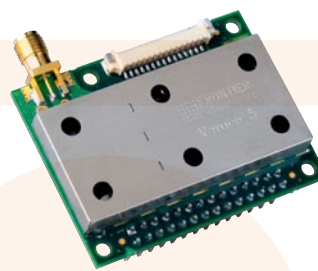
Jupiter 3 block diagram

FEATURES

- DAB Band 3 reception (optional L-Band)
- FM with RDS
- iPod docking interface
- iPod video output (S-Video and composite) with authentication coprocessor
- Clock (with auto update)
- Multiple alarms with snooze
- Sleep
- Customisable number of presets
- External connectivity
 - Headphone jack
 - S/PDIF output
- Stereo audio output
 - 2 x 1W amplifier¹
 - Digital volume control with optional mute function
- Different displays supported
 - 2-line 16-character dot matrix (optional icons)
 - 1-line 8 x starburst (optional icons)
 - Dimmable backlight (manual or auto)
- Customisable user interface keypad with 12 tact switches in a 3 x 4 matrix arrangement
- Customer deliverables include
 - Detailed specifications
 - Schematics/gerbers
 - Bill-of-materials
 - Customized software
 - EMC/ESD compliance report

VENICE 5

Jupiter 3 is based on the highly-integrated Venice 5 DAB/FM module. The software provided with the module is fully customisable.



Venice 5 FS2025 DAB/FM module

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1 Other power amplifiers may be used.