

GSM Femtocell base design

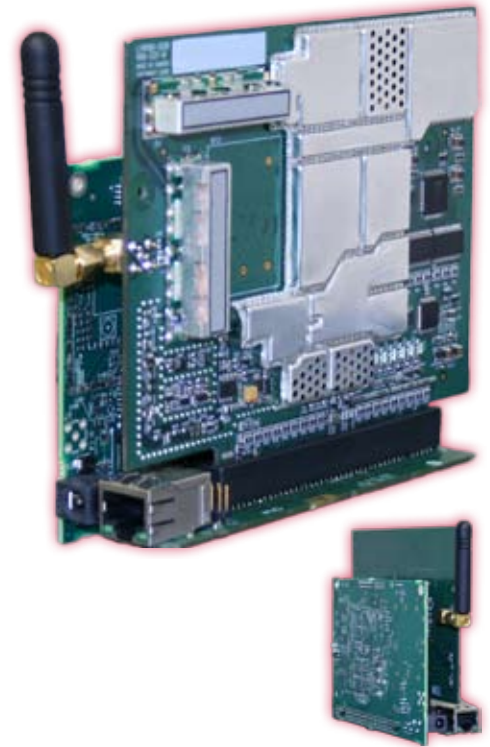
Reference sheet

The Lyrtech PSRT is a small-scale, short-range, GSM base transceiver station (BTS) for homes and small offices. It can register mobile users, act as a standard BTS, and forward/receive voice and data through an Ethernet-based network.

The design features an innovative, low-cost, DSP–FPGA architecture, which allows to fully program the baseband processing chain. The digital base board interfaces with a modular front end through digital I&Q, making it easy to customize. Lyrtech’s GSM Protocol Stack was ported to the PSRT, allowing it to operate as a complete, stand-alone, short-range indoor femto BTS (using a pico BTS profile from the European Telecommunications Standards Institute’s (ETSI) GSM specifications).

Features

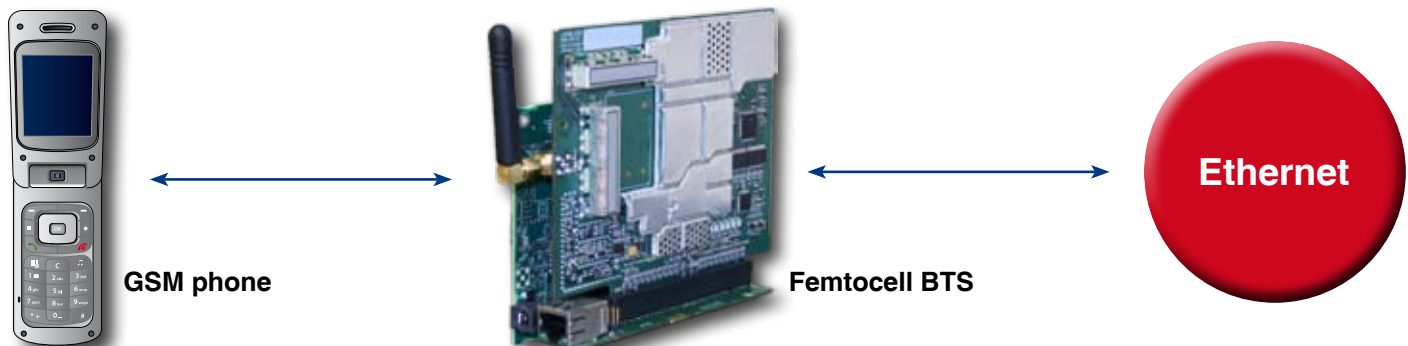
- Based on industry standards—implements the ETSI’s GSM series 44 and 45 recommendations
- Low-cost OEM BOM—based on COTS DSPs and FPGAs
- Flexible SDR design—easy to modify/upgrade the software protocol stack
- Flexible modular RF integration—speeds up deployment and customization
- Analog-to-digital and digital-to-analog conversion with DDC/DUC capabilities



The Lyrtech OEM program

This program allows OEMs to get the Femtocell design under one of the following options:

	Features
Full manufacturing	Delivery of fully manufactured, integrated, packaged, and tested products.
Limited manufacturing	Delivery of limited hardware to third-party EMS.
Full OEM license	Delivery of all production files to third-party EMS. Royalty based.
Limited OEM license	Delivery of necessary production files to third-party EMS for final production, testing, or integration. Royalty based.
Source license	Delivery of all production files and source code. Royalty based.



Specifications

Hardware

Dimensions (W x H x D)	5.0 cm x 12.0 cm x 15.5 cm
Mass	200 g
RF input	<ul style="list-style-type: none"> GSM 1800 downlink band Sensitivity: -95 dBm (pico BTS, DCS, 1800 BTS—refer to 3GPP TS 05.05 pico BTS subcategory for detailed specifications) Number of channels: 1
RF output	<ul style="list-style-type: none"> GSM 1800 uplink band Signal level: 23 dBm (pico BTS, DCS, 1800 BTS—refer to 3GPP TS 05.05 pico BTS subcategory for detailed specifications) Number of channels: 1
Clock accuracy	0.1 ppm
Ethernet	<ul style="list-style-type: none"> IEEE 802.3u TCP/UDP PCM, ADPCM (G.711) Maximum audio samples per packet: 5 ms
Overall latency from input to output	Less than 30 ms
Operating system	<ul style="list-style-type: none"> INTEGRITY RTOS by Green Hills Software Linux
Input voltage	12 V _{DC}
Cooling	Passive cooling under 10 dBm
Memory	<ul style="list-style-type: none"> SDRAM: 8 MB NOR flash memory: 512 KB

GSM communication software capabilities

Voice processing	<ul style="list-style-type: none"> Coders: FR, MR, and AMR Number of coders: up to 14 Transcoding: G.711
Data processing	<ul style="list-style-type: none"> GPRS: up to 20 kilobits EDGE: up to 59.2 kilobits Transcoding: G.711
GSM specifications reference	<ul style="list-style-type: none"> Version: series 44 and 45 specifications Bands: DCS1800 BTS profile: pico BTS (indoor use) Reference specifications: <ul style="list-style-type: none"> 3GPP TS 04.04 3GPP TS 05.02–05.05 3GPP TS 05.08 3GPP TS 05.10

FOR MORE INFORMATION



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With over 25 years of experience delivering advanced digital signal processing solutions to companies worldwide, Lyrtech serves customers across the Americas, Asia, and Europe. Lyrtech offers a full range of DSP-FPGA development platforms, as well as product development services. Lyrtech works in partnership with such industry leaders as Texas Instruments, The MathWorks, and Xilinx to deliver unsurpassed quality and support to its large OEM customer base, which includes many prestigious names of the consumer electronics, telecommunications, aerospace, and defense fields. In a world where digital signal processing technology is vital to network and wireless communications, audio and video processing, as well as electronic systems in all fields of technology, Lyrtech is an ideal partner.

Lyrtech products are constantly being improved; therefore, Lyrtech reserves itself the right to modify the information herein at any time and without notice.

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