Visual Baby/ Door Phone Monitor Reference Design

Enabling visual information over DECT for home monitoring applications

Overview

While DECT technology is widely prevalent in cordless telephony and audio monitoring applications, DSP Group™ is making the technology available for visual monitoring devices. As the world leader in chipset solutions for cordless telephony, DSP Group offers DECT chipsets featuring a small, low-cost form factor and high reliability. And given its commitment to converged communications at home, DSP Group offers a comprehensive reference design for the development of baby monitors and door phone monitors. This powerful chipset/reference design combination enables manufacturers to easily develop these and other visual data-over-DECT devices with fast time to market.

DSP Group's visual monitoring product hardware and software reference design is based on the Company's DCX (VegaOne) single-chip solution for DECT. Bringing out the best in DECT, the chip is connected to an external camera module with JPEG encoder. Audio received from the microphone and visual data received from the camera are multiplexed and sent to the remote monitoring device, which uses DECT data services to support delivery of about 220Kbps net data.

With the visual baby monitor, parents can hear their baby's voice while visual data is being decoded and displayed on a built-in 128x128 LCD screen at 8 frames per second (larger screens at a different frame rate are also supported). Part of a home telephone or dedicated monitoring system, the monitor can be linked by a DECT/CAT-iq dongle to a home PC or gateway with Internet connectivity. This enables parents to monitor their baby's room from a remote PC at their office or other sites.

Offering superior coverage, auto triggering via motion and/or audio detection (i.e. VAD, VOX), low power consumption, and zero radiation when idle (i.e. emission-free standby mode), the reference design is ideal for visual home monitoring products.

Features

- Single-chip architecture: highly integrated digital, analog and RF circuits for system bill of materials (BOM) cost savings, as well as compact design with small footprint
- Powerful ARM968E-S™ processor @ 124MHz
- Worldwide interference-free DECT 1.7GHz-1.9GHz band, including US DECT6.0
- Zero radiation mode (when there is no voice activity)
- Built-in voice activity detection (VAD with VOX)
- 2-cell battery operation with built-in DC/DC converter
- 220Kbps net data delivery over the air (using multi-bearer DECT control)
- Camera and JPEG encoder board
- JPEG decoder on embedded ARM processor
- 128x128 resolution at ~8fps (changeable)
- Low power consumption for increased monitoring time
- High-quality audio, wideband voice option
- Long range for full home coverage
- Advanced set of options (e.g. parent talk-back, movement/breathing/temperature sensing)
- Encrypted-based security for guaranteed privacy
- Bi-directional voice connectivity with hands-free, true full-duplex speakerphone (optional)
- Polyphonic melody (MIDI) playback and melody recording/playback capabilities (for lullabies)
- Full silicon, hardware and software reference design solution

Benefits

- Small form factor
- Low cost
- High portability
- Complete home coverage
- Robust link at interference-free frequency band
- Excellent audio quality
- High visual contact reliability
- Long battery life
- Privacy
- No emission (when there is no voice activity)
- Reliable silicon provider
- Proven chips used in millions of cordless telephones
- Fast time to market

Applications

- Audio and visual digital baby monitor
- Door phone devices
- Home automation - security / control with visual information

DSP GROUP
at home in your wireless world

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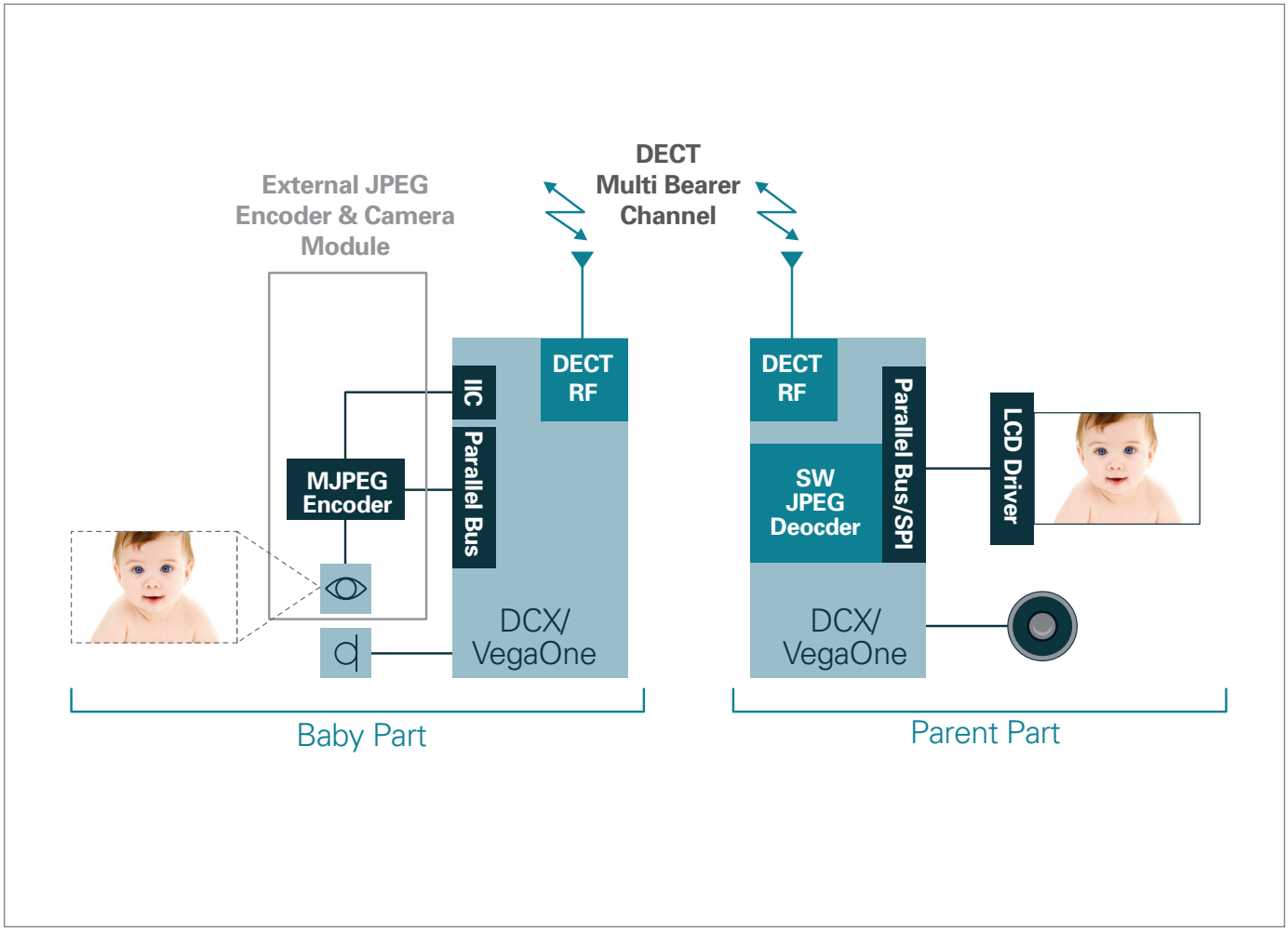
Block Diagram



DSP Group, Inc. (NASDAQ: DSPG) is a leading global provider of wireless chipset solutions for converged communications at home. Delivering system solutions that combine semiconductors and software with reference designs, DSP Group enables consumer electronics (CE) manufacturers to cost-effectively develop new revenue-generating applications with fast time to market. At the forefront of semiconductor innovation and operational excellence for over two decades, and with a growing share of the wireless home telephony market, DSP Group provides a broad portfolio of wireless chipsets integrating DECT, Wi-Fi, PSTN and VoIP technologies with state-of-the-art application processors. Enabling converged voice, audio, video and data connectivity across diverse consumer products – from cordless and VoIP phones to home gateways and connected multimedia screens – DSP Group proactively partners with CE manufacturers to shape the future of converged communications at home.

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