

Product Brief

TNETV901 Voice DSP (VDSP)

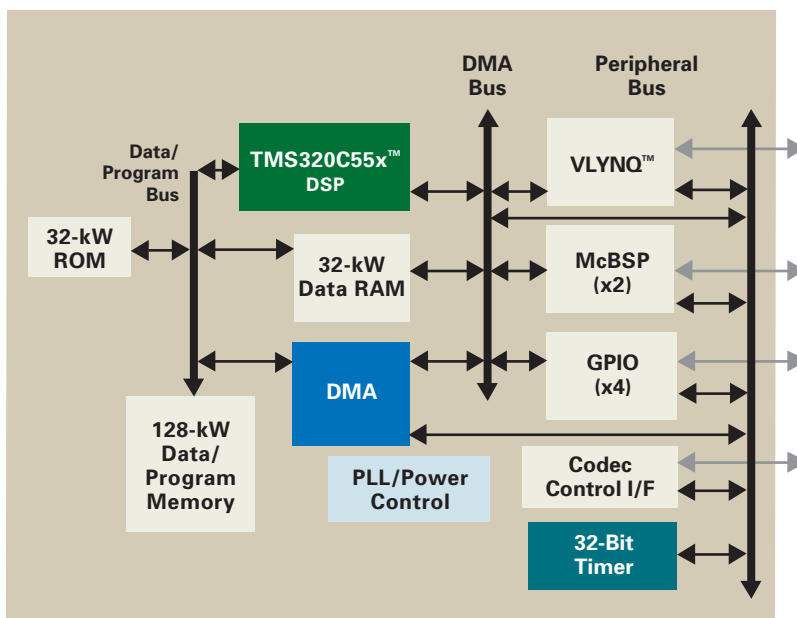
The TNETV901 Voice DSP (VDSP) leverages Texas Instruments' (TI) leadership and experience in DSP technology and market-leading Telogy Software™ to provide a high-performance, low-power, voice processing solution for broadband applications. When used in conjunction with TI's cable, DSL or gateway platforms, the TNETV901 VDSP provides a complete solution enabling primary line or secondary line voice. This VDSP is the engine for a variety of voice compression standards and will support up to four channels of voice capability.

The TNETV901 VDSP consists of a single 125-MHz TMS320C55x™ DSP core and associated peripherals, two multi-channel buffered serial ports (McBSP), two VLYNQ™ serial interfaces, four general purpose Input/Output (GPIOs) and a codec control interface. The ultra-low power and high performance of the C55x™ DSP core allows the VDSP to function in power-saving mode, automatically powering down peripherals, memory and CPU core when inactive. The device wakeup is accomplished through the VLYNQ interface.

Key Benefits

- Four-channel voice capability for VoCable, VoDSL and CPE or SME gateways
- Low bit rate vocoder support: G.711, G.726, G.723.1A, G.728, G.729AB, G.729E, G, iLBC
- Supports Telogy Software™ products for voice-over IP (VoIP)
- VLYNQ™ low pin-count serial interface provides high-performance, glueless interface to other VLYNQ peripheral devices such as 802.11 and VLYNQ-to-PCI Bridge
- Multiple devices may be daisy-chained for higher density voice applications
- No external memory required
- Glueless interface to hardware telephony codecs
- Glueless interface to TI broadband chipset solutions

TNETV901 Block Diagram



VLYNQ™ Interface

The VLYNQ interface is a high-performance, software transparent serial communications interface that allows the extension of an internal bus segment on the communications processor to one or more external physical devices. The VLYNQ interface allows multiple VDSPs to be daisy-chained, utilizing the VLYNQ interfaces available to expand channel capacity and add flexibility in design.

Voice Codec Support

The TNETV901 VDSP provides two McBSP ports and one serial control port for interfacing to a programmable voice codec and

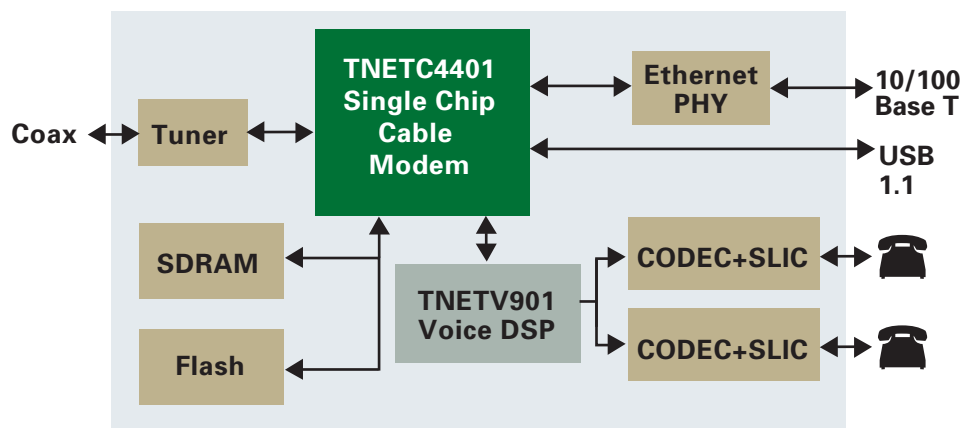
Key Features

- 125-MHz TMS320C55x™ DSP core
- 160-kW on-chip RAM
- 32-kW on-chip ROM
- Two multi-channel buffered serial ports (McBSP)
- 32 bi-directional channel DMA
- Two VLYNQ™ serial interfaces for connection to additional Voice DSP devices, other TI broadband communication processors and/or other TI Broadband peripheral devices (802.11, VLYNQ-to-PCI)
- Codec interface for control data
- Four general-purpose input/output (GPIO)
- 32-bit timer
- JTAG test access port controller for boundary scan
- -40° to 85° C operation
- Less than 0.5 watts power consumption

TI C55x™ DSP Core Features

- High-performance, low-power, fixed-point DSP
- On-chip DSP subsystem local memory
- Variable byte-width instruction set for improved code density
- Dual multipliers
- Two arithmetic logic units

TNETC520 Block Diagram



Voice DSP in a Cable Modem Application

The above diagram illustrates how the TNETV901 Voice DSP is used in TI's TNETC520 Cable Modem Reference Design.

ringing SLIC, which provide the interface between the digital system and the analog phone line for two or four voice channels.

The TNETV901 VDSP is available in a low-pin count 64-pin TQFP package and is rated for industrial temperature use (-40° C to 85°C).

Outstanding Support

System developers can rely on TI for support to reduce cost, ease design and facilitate system integration as well as speed time-to-market. The TNETC520 voice-enabled cable modem reference platform (which includes the TNETV901 Voice DSP and Telogy Software) is an example of how TI's system solution expertise

offers customers the complete solution to help them quickly and cost-effectively get their products to market.

TI's experience in voice technology, system-level expertise and design support are the reasons why leading OEMs who are developing VoIP products choose TI solutions.

For More Information

To learn more about the TNETV901 and TI's broadband platforms for cable, DSL and gateway, contact your local TI field sales office or visit: www.ti.com

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