

**Product Bulletin**

# Embedded V.90 Modem Solution

### Key Features

- Highly integrated two-chip V.90 embedded modem chipset
- Supports V.90 and all prior ITU data and fax modes
- Ultra-low power consumption
- Parallel or serial interface
- Works with any OS – modem is host independent

The new highly integrated, low-power embedded V.90 modem chipset gives designers a powerful new solution for implementing V.90 modem functionality in embedded applications. The two-chip solution, which consists of a TMS320C54V90 DSP and a line-side data access arrangement (DAA) chip from PCTel, consumes less than 35 mW of power when running a V.90 modem and requires as little as 1.5 square inches of board space. This cuts power consumption as much as 90 percent and board space up to 40 percent over existing solutions—allowing an advanced modem to be placed in even the smallest spaces.

With its extremely small size and low power consumption, the C54V90 DSP modem chipset is ideal for a variety of embedded modem applications, including:

- Internet appliances
- Set-top boxes
- Gaming consoles
- Digital cameras, PDAs
- Industrial monitoring systems
- Remote data collection and security

For these and other embedded applications, the C54V90 DSP modem chipset lowers system cost, reduces board space and power requirements—while performing all standard data and fax speeds and fallbacks. It brings

unparalleled integration, proven operation and flexibility.

### Integration

The C54V90 DSP modem chipset implements a complete modem solution with only two chips. The C54V90 DSP incorporates modem control and data pump software, eliminating the need for off-chip memory, and it integrates the digital portion of the DAA on-chip, decreasing the conventional embedded modem solution from five or six devices to just two chips. As a complete modem solution, the C54V90 DSP modem chipset alleviates design worries about adversely impacting scarce host resources or effecting primary applications. Other integration features of the chipset include:

- Internal RAM for technical modifications and software upgrades
- V.90 and all prior ITU data and fax modes supported

- Parallel or serial interface
- Integrated transformerless silicon DAA for phone line interconnection
- Integrated power management with sleep mode

### Proven Operation

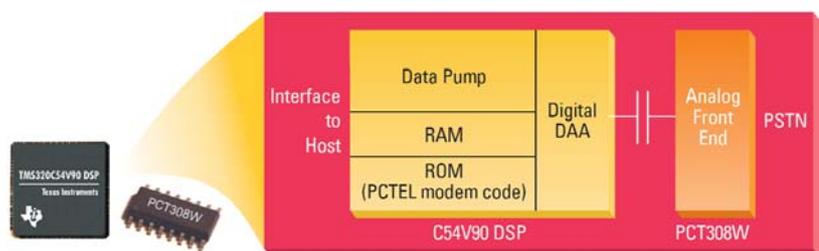
The C54V90 DSP modem chipset is backed by TI's industry-leading DSP expertise and leading software technology from PCTel. This gives designers an easy-to-use, reliable and proven solution with features such as:

- Worldwide telecom approvals
- Supports more than 65 country profiles

### Flexibility

As a programmable solution, the C54V90 DSP modem chipset is designed with the flexibility to help designers get systems to market fast. In addition, technical modifications, software upgrades or other algorithms can be performed via internal or external memory.

### C54V90 DSP Modem Chipset Block Diagram



## Key Specifications

- Data modulation standards
  - V.90, V.34, V.32bis, V.22bis, V.22, V.23, V.21, Bell 212A, Bell 202, Bell 103
- Fax modulation standards
  - V.17, V.29, V.27ter, Group 3, TIA Class 1
- V.42/MNP4 error correction
- V.42.bis data compression
- Caller ID
- Power management
- Solid state DAA
- Serial interface (16550 UART)
- Parallel interface (8-bit HPD)
- Functional equivalence to TIA RS-232C using serial interface
- Power requirement 35 mW (typical)
- Worldwide operation

## For More Information

To learn more about the C54V90 DSP modem chipset, please contact your local TI field sales representative. Or visit, [www.dspvillage.ti.com/v90](http://www.dspvillage.ti.com/v90)

## TI Worldwide Technical Support

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#### Americas

Phone +1(972) 644-5580  
Fax +1(972) 927-6377  
Internet/Email [support.ti.com/sc/pic/americas.htm](http://support.ti.com/sc/pic/americas.htm)

#### Europe, Middle East, and Africa

Phone  
Belgium (English) +32 (0) 27 45 55 32  
Finland (English) +358 (0) 9 25173948  
France +33 (0) 1 30 70 11 64  
Germany +49 (0) 8161 80 33 11  
Israel (English) 1800 949 0107  
Italy 800 79 11 37  
Netherlands (English) +31 (0) 546 87 95 45  
Spain +34 902 35 40 28  
Sweden (English) +46 (0) 8587 555 22  
United Kingdom +44 (0) 1604 66 33 99  
Fax +(49) (0) 8161 80 2045  
Email [epic@ti.com](mailto:epic@ti.com)  
Internet [support.ti.com/sc/pic/euro.htm](http://support.ti.com/sc/pic/euro.htm)

#### Japan

Fax International +81-3-3344-5317  
Domestic 0120-81-0036  
Internet/Email International [support.ti.com/sc/pic/japan.htm](http://support.ti.com/sc/pic/japan.htm)  
Domestic [www.tij.co.jp/pic](http://www.tij.co.jp/pic)

#### Asia

Phone  
International +886-2-23786800  
Domestic Toll-Free Number  
Australia 1-800-999-084  
China 108-00-886-0015  
Hong Kong 800-96-5941  
Indonesia 001-803-8861-1006  
Korea 080-551-2804  
Malaysia 1-800-80-3973  
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Philippines 1-800-765-7404  
Singapore 800-886-1028  
Taiwan 0800-006800  
Thailand 001-800-886-0010  
Fax 886-2-2378-6808  
Email [tiasia@ti.com](mailto:tiasia@ti.com)  
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