

DATA SHEET

HK336VCP IP Phone Reference Design

LOGIK ITS

Introduction

HK336VCP is a low BOM (< US\$50 in 1K+ volume) IP phone reference design. The design is unconventional as it is based on single CPU – TMS320C54CST Digital Signal Processor from TI. All functions of IP phone including voice processing, networking and user interface are handled by the DSP. The approach helps significantly in reducing the overall cost and complexity of hardware in contrast to most conventional designs that use combination of DSP and microcontroller.

Software libraries are available to build complete IP phone applications. Additionally, more software components may be developed or licensed from third party vendors if required (such as SIP client and different low bit-rate voice codecs).

Hardware Features

Processor	TMS320C54CST – 120 MHz max (120 MIPS max)
	37 K x 16 on-chip high speed RAM (used as Data Memory)
	On-chip boot-loader with multiple boot sources including SPI
	A number of commonly used telephony algorithms in on-chip ROM
	3x programmable McBSP (UART, SPI, PCM)

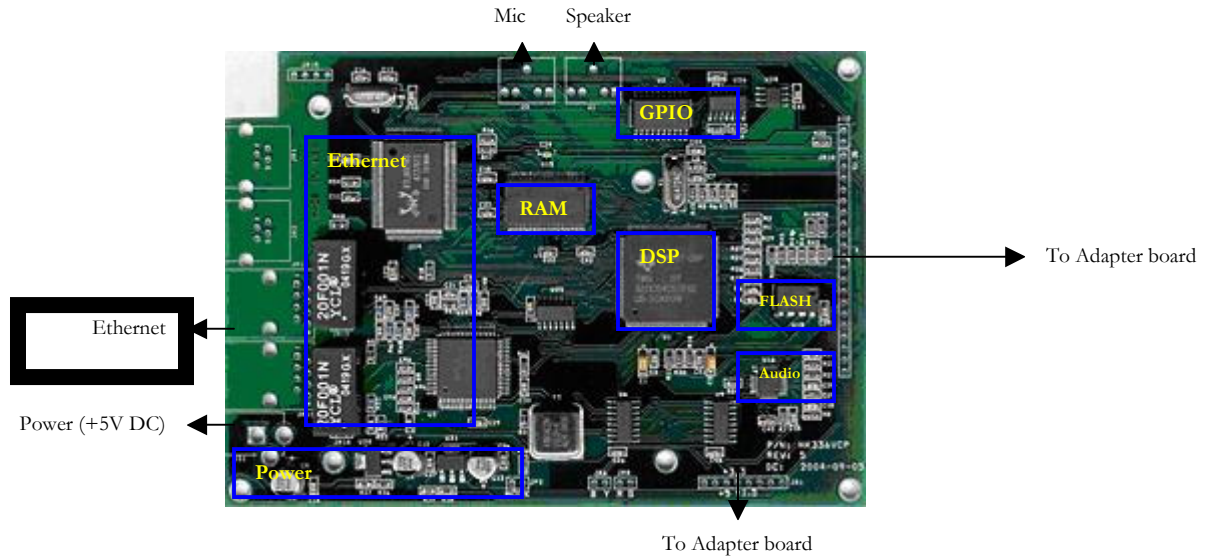
Off-chip devices

Watchdog Timer	1x
FLASH	64 K bytes SPI FLASH
RAM	64 K x 16 100 MHz SRAM (used as Program Memory)
Voice Codec	1x
Ethernet	2-port 10 BaseT
Power	+5V DC (Regulated) @ 1 A max

Other interfaces

Key Pad	30 Keys (6 x 5 matrix)
LCD	Character, up to 2 lines

RS-232	For debug terminal and factory programming
Audio	Standard phone handset, speaker phone and separate Mic/Spkr
GPIO	Available for status LEDs etc



Hardware Support

Hardware can be modified/enhanced as per customer requirements including further reduction of BOM.

Hardware Status

The design has gone through multiple revisions and is in mature state ready for production with little or no modifications.

Software Support

Complete set of support libraries is available including:

- BSP (including drivers for keypad, LCD and LAN chip)
- Kernel
- Voice processing (GSM only)
- Networking stack (IAX, UDP, IP, ARP, DHCP, DNS, TFTP).

- User interface for character LCD
- Network boot-loader
- Working examples in application framework

Full support for peripherals on the DSP is available by TI and their partners specially SpiritDSP.

Software Status

Different software modules have gone through extensive testing during development phase. However, further QA and testing may be required before mass production.