

DECT platforms – not just for telephones



Although originally targeted at telephony, DECT is also perfectly suited to other applications that require the reliable connection management and seamless mobility that DECT provides. Cambridge Consultants, based on its established DECT track record, now leads this exciting new market for custom application of DECT.

Digital Enhanced Cordless Telecommunications (DECT) is now a mature and proven technology, with hundreds of millions of units in use world-wide. Silicon solutions are cheap and ubiquitous.

Distinguished track record

We have been developing DECT hardware and software since 1997, starting with telephony-oriented products, and subsequently enhancing our intellectual property to provide high-integrity digital radio links in a broad range of applications.

These have included:

- Cordless professional intercom system – full system features on a belt-pack (picture overleaf)
- Multi-microphone conference system
- Site-wide cardiac telemetry system, allowing an unlimited number of patients to be monitored continuously
- Data module for portable point-of-sale terminals
- Simplex video link (64kbit/s) plus duplex audio, for door answering device
- Both Ethernet- and circuit-switch-based backhaul systems for full cellular mobility
- Cordless desktop phone for professional applications

Cambridge Consultants' software stack is built for maximum versatility and portability, and has been implemented on the leading baseband silicon solutions. We

have provided reference hardware designs at both baseband and RF, and have worked closely with our clients' designers to provide the necessary close level of integration between main system and radio link.

Full mobility is a key feature of the stack, with connection and bearer handover fully implemented, and a comprehensive API to a backhaul system (which we can also provide).

The software is compact, with a complete telephony application typically fitting into a 128kByte footprint – well within the capabilities of on-chip ROM or FLASH. It is readily customised to provide data rates other than the 32kbit/s required for telephony.

Additions and improvements

We have now made several implementations for the USA (UPCS band and spectrum etiquette rules) as well as for Europe and the rest of the world.

We have built versions of DECT using a longer frame with 64 time-slots. This allows more than 25 users to share a base-station at a lower data rate, whilst still providing the managed, interruption-free radio link offered by the DECT system design.

We have also implemented double-slot and multiple bearer links within the standard frame length.

The key to this capability is our versatility – we are willing and able to provide cordless

communications capability for any application, at low risk, short development time, and low cost.

Benefits of the Cambridge Consultants DECT solution

- Spectrum management system allows separate systems to co-exist without mutual interference
- Connection-oriented scheme, allows reliable connections and low latency in data transfer
- Make-before-break handover

- between base stations, so no gaps or glitches
- Extremely small software footprint, with full cellular functionality maintained
- We have developed radio solutions for a number of specialist bands as well as standard DECT and UPCS
- Cambridge Consultants has variants with different frame sizes and data rates for optimum power consumption.



Approvals gained	TBR6/EN301 406 (radio) TBR22/EN300 444 (GAP) FCC §15.301-15.323 (UPCS)
Standards	EN300 175-1 to –9, EN300 444 etc.
Platforms	SiTel SC14408/25/28/30 NXP Vega VWS23101, VWS23112 Other standard device, ASIC- and DSP-based platforms available STREAMS-based scheduler on small Hardware Abstraction Layer
Code footprint (typical)	<128kByte ROM/FLASH ROM (1 Mbit) for typical telephony application, including user interface. 4kByte RAM
Connections supported	³ >10 per baseband (using SC14428, 10ms frames)
API	C Library functions; can be customised at low cost
RF transceivers supported	SiTel, Infineon, NXP, Atmel. Others at low additional cost
Features and functions	Fast antenna diversity API and switching solutions for connection handover between RFPs. Double- and multi-slot connections

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Cambridge Consultants Ltd
Science Park
Milton Road
Cambridge
England CB4 0DW

Cambridge Consultants Inc
101 Main Street
Cambridge MA 02142
USA

info@CambridgeConsultants.com
www.CambridgeConsultants.com

Tel: +44 (0)1223 420024
Fax: +44 (0)1223 423373

Tel: +1 617 532 4700
Fax: +1 617 737 9889