

DSP Group Inc. (NASDAQ: DSPG)



# Operator Business Models: Using CAT-iq Values

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# About DSP Group

A Leader in Wireless Chipset Solutions for Converged Communications at Home

## Market Leader

### Leading the Wireless Home

- >1 billion chips shipped
- 65% market share in cordless
- \$212M revenues in 2009
- Leading the evolution of cordless into multimedia



## Technology Innovator

### First to Develop

- Digital telephone answering device (TAD) processor
- 2.4GHz multi handset cordless chipset
- SoC integrating application processor with Wi-Fi, DECT & VoIP



## Dedicated Focus

### Wireless Multimedia for the Home

- Investing 25% of sales in new product development
- ~300 engineers
- 138 patents granted, 110 pending



# DSP Group's Portfolio – Complete System Solutions for:

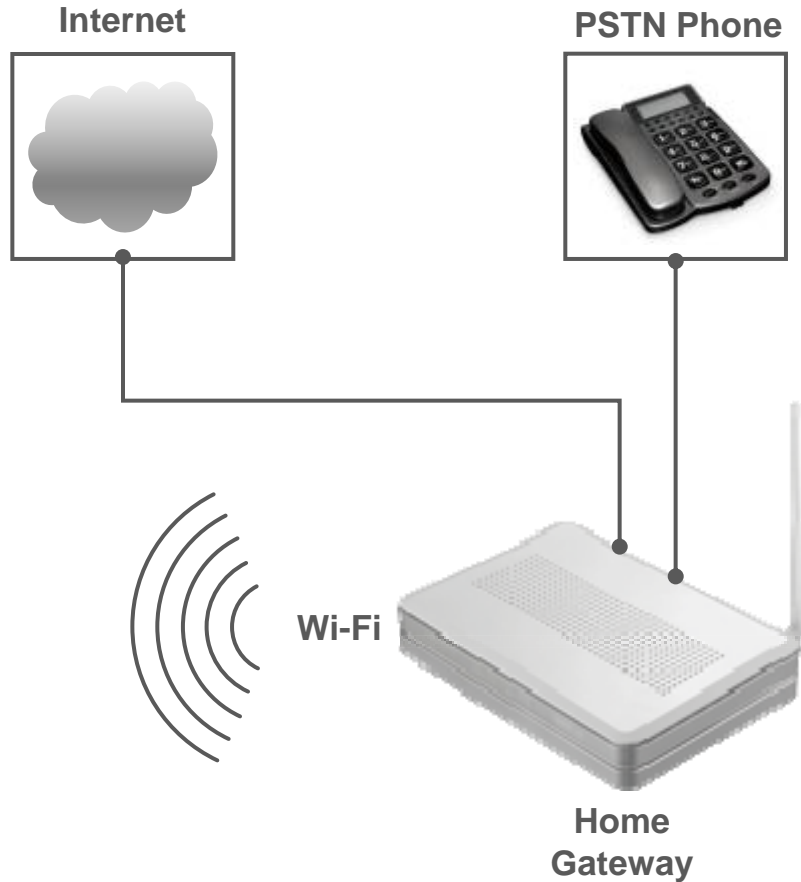
<b>Multimedia</b>	<b>MM processor + Wi-Fi + DECT + VoIP</b>
<b>XpandR Family</b>	
<b>VoIP</b>	<b>VoIP + DECT</b>
<b>XciteR Family</b>	
<b>Cordless</b>	<b>DECT / DECT6.0</b>
<b>XceedR Family</b>	

# The Fundamental Values of DECT

**DECT is the chosen technology by the operators (HGI) for voice distribution at the home**

- **Mature and Proven Technology:** selling about 70M DECT telephone p.a. with installed base reaching 300M and growing by 10% p.a.
- **Healthy industry:** with the leading CE brands, Equipment Manufacturers and Chipset Vendors involved
- **Worldwide deployment of DECT bands:**
  - Europe followed by the Americas, lately in S. Korea and soon in Japan
  - DECT Forum continues worldwide spectrum expansion, currently working on India
- **Interference free:** protected spectrum with no license fee
- **Indoors Range:** better residential coverage than competing wireless technologies (e.g. cell phones, WiFi)
- **Focus on voice quality:** long time standardized
- **Low-power:** long talk and standby time without recharge, inherently Green technology both in power consumption and radiation
- **Secure:** encrypted voice and data for privacy
- **Low Cost:** due to economy of scale and the high silicon integration

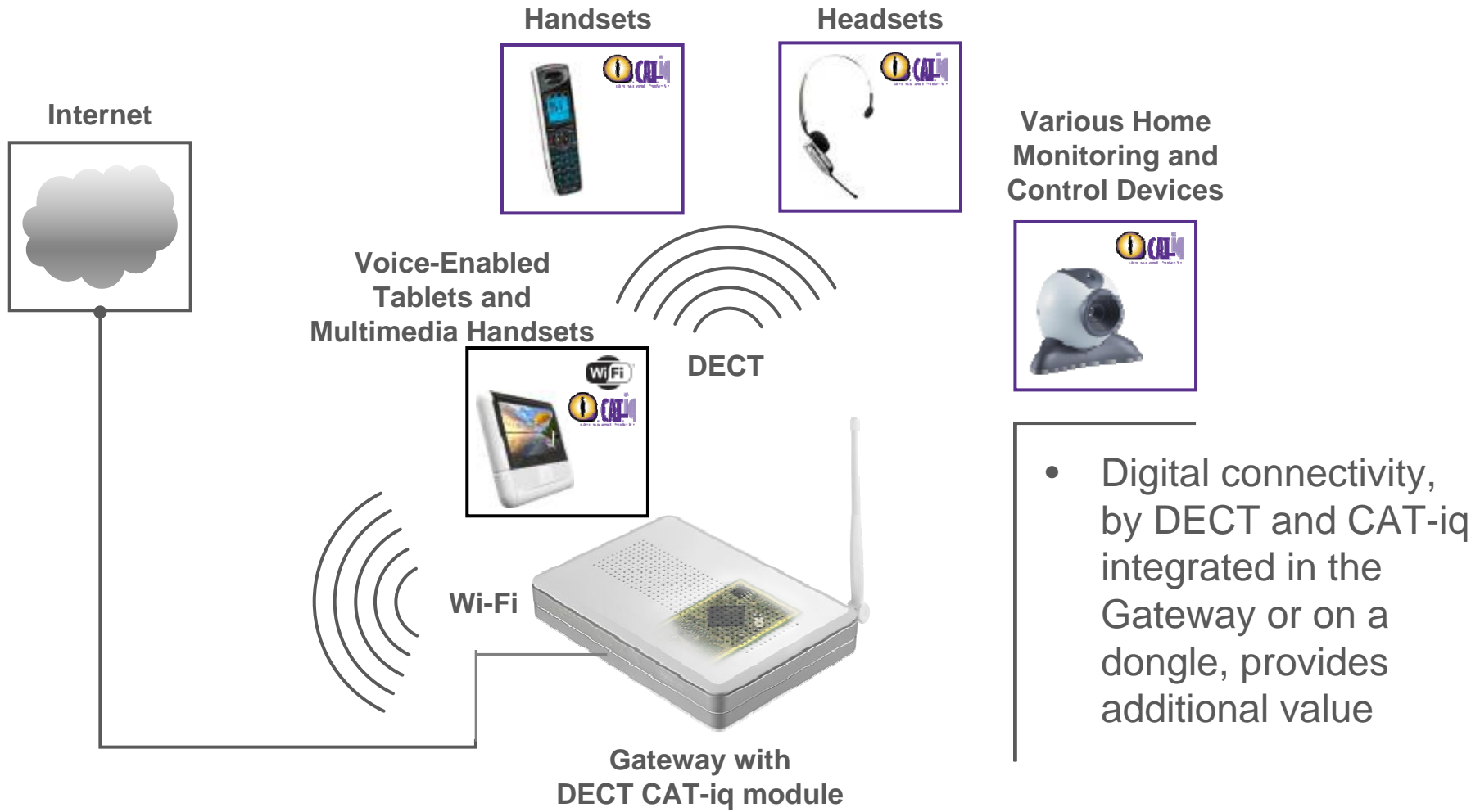
# VoIP in the Broadband Era



## FXS connectivity only allows:

- Narrowband voice
- Basic PSTN-like network services (i.e CID)
- Need number of telephone sockets for multi-line service

# VoIP in the Broadband Era with add-on DECT



- Digital connectivity, by DECT and CAT-iq integrated in the Gateway or on a dongle, provides additional value



# DECT in the Broadband Era

- DECT for voice calls mobility, either integrated or as a dongle attachments, is establishing a foothold in:
  - xDSL Home Gateways
  - xPON Home Gateways
  - Cable eMTA's and enhanced STB's
  - 3G/3.5G/4G Home Routers – Fixed-Mobile Convergence (FMC)
  - Various VoIP terminals and ATA's
- So what are the additional values with CAT-iq can bring ?



# Standardization, Quality Criteria and Certification



## Value for the Operator



- **Ensured quality level and functional interoperability between vendors**
- Value brand for premium
- Multiple “handset” device type options, inspiring innovation
- Option to concentrate on gateway (e.g. allowing sale of handsets in retail)
- Future-proofing and backwards compatibility to install base

## Value for the Operator



- Ability to refer to a standard for key features in operator RFQs
- Third party test infrastructure reducing internal R & D test effort
- Accelerated TTM on new products already providing support for CAT-iq
- Ability mix and match between handset and gateway suppliers

# CAT-iq Feature highlights – obvious choices

DECT  
FORUM

## CAT-iq Profile Features



### • CAT-iq 1.0

- Wideband Audio
- Display of Caller id, Caller Name



### • CAT-iq 2.0

- Wideband Audio
- Display of Caller id, Caller Name
- Synchronization of calls lists, family phonebook
- Synchronization of system settings e.g. date/time
- Multiple lines handling (optional on BS)
- Ability to handle parallel calls such as call transfer, forward, conference
- DTMF and Tones
- Support for Headset
- Easy PIN code registration
- Easy pairing registration
- Handset location
- No emissions mode (optional)

### • CAT-iq 2.1

- 3-party conference call
- Intrusion call
- CLIR
- Answering Machine control
- Enhanced Security
- 'Green' Power Saving Aspects
- Diagnostics features
- Recommended Tones (optional)
- Handset Capability Enquiry
- Support Personal Phonebook in HS
- SMS

### • CAT-iq 3.0

- 'Lite' data service
- Software Upgrade 'over-the-air' (SUOTA)



### • CAT-iq 4.0

- "Intelligent Networking"

5

# Enhanced Voice – HD Ready



## Value for the Operator



- Recognizable value for additional service revenue / increase of VoIP sales
- Interoperable (voice codec) and certified:
- Increased customer satisfaction with the quality of the voice service
- Can migrate customer base from PSTN to VoIP

## Consumer benefit

- Natural conversation experience
- Improvement clarity of call
- Simple to understand



# Multiple Lines Handling



## Value for the Operator



- Ability to sell more lines and more handsets for more revenue
- More simultaneous calls per household for increased revenue

## Consumer benefit

- More lines at home, no need to wait until the line is free
- Simple access from each handset
- Ability to personalize handsets, distinctive rings, individual lines



# Easy Pairing Registration



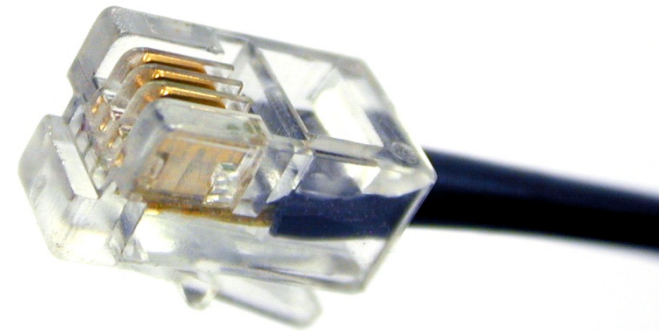
## Value for the Operator



- Confidence that handsets can be sold as after-market, even in retail
- Reduced customer support on new handset installations

## Consumer benefit

- Plug and play
- Simple setup
- Can easily add a new handset



# “Green Power Saving”



## Value for the Operator



- Promote and brand the Green values of DECT
- Contribute in component part to Broadband CoC

## Consumer benefit

- “Eco Friendly”
- Adjust power to suit personal home environment



# Software Upgrade Over-The-Air (SUOTA)



## Value for the Operator



- Remote equipment upgradability
- Reduced customer support
- Maintains compatibility with installed base of new products/releases
- Allow user access to new services without buying new equipment

## Consumer benefit

- Access to new services without having new installation
- Automatic update without user interaction

# CAT-iq Feature highlights – additional benefits

DECT  
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5

# Lists Sharing and Management – Synchronization of call lists, family phonebook



## Value for the Operator



- Up to date and correct information across handsets reduces support costs & returns
- Potential for more returned calls due to correct and up-to-date lists and phonebook name and number matching
- Ability to synchronize lists, especially family phonebooks, with network phonebooks and offer such additional services

## Consumer benefit

- No confusion over calls, missing calls etc.
- Shared Family phonebook, but with the ability to keep personal contacts private to the handset.
- Can access services to sync all phonebooks via the network, if provided



# Parallel Calls Handling e.g. call transfer, forward, conference



## Value for the Operator



- Have more established calls per line - less missed or dropped calls
- Promote advanced multi-line/multi-call home PBX systems
- Can readily support Home Office

## Consumer benefit

- Enjoy home PBX services
- Can direct the call to the intended recipient without having to physically take it
- Can add another family member to an existing call

# Headset Support



## Value for the Operator



- Encouraging fixed-line usage whilst being mobile inside the home
- Potential for longer continuation of calls, as end user can still continue with their home task and the call in parallel
- Concept adds additional “handset” in the home

## Consumer benefit

- High mobility
- Handsfree
- Simple interface
- Can continue with telephone call whilst doing household tasks



# Diagnostics



## Value for the Operator



- Provides simple method of sending information to the consumer about the network service
- Reduces customer helpline costs
- First-line diagnostics with the end user
- Reduces cost of manual creation and front-line installation support costs

## Consumer benefit

- Up to date network information
- Removes waiting on a helpline queue to find out latest status
- No need to call helpline unless problem is more complex

# Future Data Services



## Value for the Operator



- Standard way to push more data to the handsets over DECT
- Offer and charge for downloads (e.g. ringtones, wallpapers, phonebooks)
- Offer data services, e.g. RSS feeds, push/pull information to/from the network (news, weather, traffic, TV guide, etc.) for higher revenue
- Web radio option with increased bit rate as potential revenue service
- Light advertisement opportunity

## Consumer benefit

- Consumer benefit,
- Presence, IM, Social networking, email updates
- Information & data access
- Innovative devices with end consumer in mind



# Summary



- CAT-iq does bring benefits to the operator
  - Potential to create new revenue streams for voice & data services
  - Cost saving associated with support helpline
  - Enjoy multiple supplier choice
  - Reduced in-house testing with third-party test infrastructure
  - Ability to provide new services to existing install base
- CAT-iq brings some additional benefits to the end consumer
  - Some visible such as high definition voice
  - Some more intangible as caller lists, phonebook, easy-pairing

## One last thought ...



- CAT-iq is the enabler for more Home Gateway vendors to offer DECT in their devices, in parallel to different vendors offering more and more innovative DECT-enabled portable devices of all types:



- Can open the door for more gateway-connected devices for home control, monitoring, telemedicine, etc.