Release Notes

Ver.1.0

Release Type	External	Page 1 of 41
Release Date	**24-Aug-2010**	
Project Name	**Scorpion**	
Archive	/project/d/d53/ccm_ba/VEGAONE_3.12_Release	
Version Number	**3.12.0.1**	
Target Chipset	**DCX, VegaOne**	
Technical Issues Contact:	Please contact your customer support: SupportHK@dspg.com SupportEU@dspg.com SupportIL@dspg.com	
Comments CAT IQ 1.0 compliant		

Table of content

1   Enhancements and bug fixes in this release

1.1 General

This release is based on ver. 3.11.0 and includes bug fixes and improvements as described in the following sections in this chapter.

1.2 New Features:

- 46/23 hopper for WDCT: **SD02_US_DECT** EEPROM location provides 2 options, 0 for CLASSIC_WDCT using 95/19 and 1 for 46_23_WDCT using 46/23

1.3 Enhancements & improvements:

- DCX improvements (PMU, MLSE, AFE tuning, Li-Ion Charging)
- AT commands support
- Flexible Noise Reduction (FNR) on handset and base
- Flexible Noise Estimation + Flexible Listening Enhancement (FNE + FLE)
- SW update over USB
- DSPG USB stack
- Polyphony on base
- Headset support
- DCX78 support
- Color LCD on EBI
- Version display
- G711
- No Emission mode for DCX79
- DRPC support

   This version is using DSP/API7.21

1.4 Major Fixed bugs:

CR ID	Synopsis
ILD53#1435	WDCT with DATA CALL config: No voice for incoming call
ILD53#1458	WDCT: When HS1 make outgoing call, it has audio problem if HS2 tries to setup a data call
ILD53#1438	Compile Error if LPM=1
ILD53#1398	DCX: High MIPS consumption with SP_ON_BASE
ILD53#1462	No IOM data sent after a few second - IDLE_FLOW
ILD53#1409	Cannot compile if no external line is enabled
ILD53#1539	DCX: Wrong EEPROM configuration between earpiece (TX) and Handsfree (TX)
ILD53#1437	Intercom Call with Spkear Phone, Voice Disconnected after ringing.
ILD53#1298	Add Location retry on MML1_EXPIRED
ILD53#1434	Data handler can't work with DSP flow
ILD53#1494	DCX: CAT-iq builds must not have Double Slot enabled in the FT for RF19APU
ILD53#1523	Unprotected In channel not working (p_hm15_NotifyIN)
ILD53#6886	DCX: Fix default values for US_DECT in EEPROM
ILD53#1588	PT NEMo RSSI scan uses the wrong slots
ILD53#1399	DCX: Dial tone for intercom call is not played at the speaker phone on BS after power reset
ILD53#1455	No speech path to Speakerphone base from HS / line 1 when HandsFree is turned off.
ILD53#1457	No speech path from Base to HS and external line
ILD53#1622	LCD=1 compilation error

ILD53#1600	DTAM message is always played in the speaker in Speakerohone Base. HF is not working
ILD53#1596	Problem with playing call disconnection tone at HS for intercom calls
ILD53#1581	DTAM menu in FT is not entered after DTAM has been disconected
ILD53#1630	Distorted audio after dropped the external call whcihwhich is still on hold status and follows there is another incoming or outgoing external call being made
ILD53#1632	DCX: XTAL tuning in RXTUN with factory reset menu
ILD53#1603	DTAM is not working in the DCX variant (case 1) when FNR is enabled on BS
ILD53#1648	Mastermode could not be accessed when external call is established
ILD53#1770	EEpromWriteByte to PORBGCFG is wrong when doing Bandgap calibration
ILD53#1773	Modified COW patch location definition in macrodef.mac
ILD53#1778	DECT RM should check bearer it uses for locking, to see whether it is a real dummy

1.5 Updated and new documents

1.5.1 *Updated documents:*

- ScorpionBuildCommands
- SUOTA Software Architecture [41]
- Software Release Note: DSP Application Programming Interface

1.5.2 *New documents:*

- HydraHeadSetSM[46]
- DCX79 SW requirement document[44]
- BandGap calibration
- VegaOne Handset AT Commands [43]
- HYDRA HS[46]
- Scorpion Polyphonic Ringer on Base [42]
- VegaOne Base local HS HW modifications [45]
- DRPC_SoftwareChangeValidation.pdf [48]
- DRPCforWDCT[47]

1.6 Changed Libraries

- DSPAPI –> Ver 7.21
- VegaOne
    - LMAC
        - FT:
            - libfplmacvone.lib
            - libfplmacvone-mix.lib
            - libfplmacvone-2s-long.lib
            - libfplmacvone-2s-long-ip.lib
            - libfplmacvone-2s-long-mmc-ip.lib
            - libfplmacvone-2s-mix.lib
            - libfplmacvone-2s-mix-long.lib

        - PT:
            - Libpplmacvone.lib
            - libpplmacvone-mix.lib
            - libpplmacvone-2s-long.lib
            - libpplmacvone-2s-long.lib-ip
            - libpplmacvone-2s-long-mmc-ip.lib
            - libpplmacvone-2s-mix.lib
            - libpplmacvone-2s-mix-long.lib
    - BMP :
        - FT:
            - libfpbmpvone-mix.lib
            - libfprambmpvone-mix.lib
        - PT:
            - libppbmpvone-mix.lib
            - libpprambmpvone-mix.lib
- DCX79
    - LMAC
        - FT:
            - Libfplmacdcx79.lib

- Libfplmacdcx79-2s-long.lib
- Libfplmacdcx79-2s-long-ip.lib
- Libfplmacdcx79-2s-long-mmc-ip.lib
- Libfplmacdcx79-2s-mix.lib
- Libfplmacdcx79-2s-mix-long.lib
- Libfplmacdcx79-ar.lib
- Libfplmacdcx79-mix.lib

- o PT:
  - Libpplmacdcx79.lib
  - Libpplmacdcx79-2s-long.lib
  - Libpplmacdcx79-2s-long-ip.lib
  - Libpplmacdcx79-2s-long-mmc-ip.lib
  - Libpplmacdcx79-2s-mix.lib
  - Libpplmacdcx79-2s-mix-long.lib
  - Libpplmacdcx79-ar.lib
  - Libpplmacdcx79-mix.lib
  - Libppwtlmacdcx79-2s-mix-long.lib
  - Libppwtlmacdcx79-mix.lib

- BMP :
  - o FT:
    - Libfprambmpdcx79-ar.lib
    - Libfprambmpdcx79-mix.lib
  - o PT:
    - Libpprambmpdcx79-ar.lib
    - Libpprambmpdcx79-mix.lib

- DCX78
  - LMAC
    - o FT:
      - Libfplmacdcx78.lib
      - Libfplmacdcx78-2s-long.lib
      - Libfplmacdcx78-2s-long-ip.lib
      - Libfplmacdcx78-2s-long-mmc-ip.lib
      - Libfplmacdcx78-2s-mix.lib
      - Libfplmacdcx78-2s-mix-long.lib
      - Libfplmacdcx78-ar.lib
      - Libfplmacdcx78-mix.lib

    - o PT:
      - Libpplmacdcx78.lib
      - Libpplmacdcx78-2s-long.lib
      - Libpplmacdcx78-2s-long-ip.lib
      - Libpplmacdcx78-2s-long-mmc-ip.lib
      - Libpplmacdcx78-2s-mix.lib
      - Libpplmacdcx78-2s-mix-long.lib
      - Libpplmacdcx78-ar.lib
      - Libpplmacdcx78-mix.lib
      - Libppwtlmacdcx78-2s-mix-long.lib
      - Libppwtlmacdcx78-mix.lib

  - BMP :
    - o FT:
      - Libfprambmpdcx78-ar.lib

- Libfprambmpdcx78-mix.lib
  - PT:
    - Libpprambmpdcx78-ar.lib
    - Libpprambmpdcx78-mix.lib
- Common
  - HLPMLP:
    - FT:
      - libfphlpmlp.lib
      - libfphlpmlp-nemo.lib
    - PT:
      - libpphlpmlp.lib
      - libpphlpmlp-nemo.lib

1.7 Detailed Description of Enhancements & improvements:

1.7.1 DCX improvements

1.7.1.1 PMU

- FT AUX and POR band gap automatic calibration
- Shut Down in DCX is done via RF19APU (reduces current consumption)
- Wake up via dcins and dcin0
- Supply voltage tuned
- Change coil frequency in DC2DC for better power consumption

1.7.1.2 Maximum Likelihood Sequence Estimation (MLSE)

MLSE is a hardware engine implementing Viterbi algorithm to find most likely sequence.
MLSE is now supported by the software and allows improvement in RF sensitivity of up to 2.5dB and reducing noise floor.

1.7.1.3 AFE (audio)

- AFE is tuned for PT/FT values
- Equalizer values are tuned for RF19APU
- Modification for speakerphone on base (HW modifications. See **Error! Reference source not found.**)
- DSP modules configuration for RF19APU

For more details, please see 3.3 in **Error! Reference source not found.**

1.7.1.4 Li-Ion

DCX now supports automatic Li-Ion charging for handset and suitable calibration.

Compilation is by COPTS="-DLI_ION"

For more details, please see Req. {PMU-0006} in **Error! Reference source not found.**

1.7.1.5 FP ECO

The FP ECO feature enables a reduction of the RF transmit power. In order to enable this feature DTPC=1 should be enabled.
In this case function *p_hm17_TxPowerControl* is enabled and calls a user defined function which returns by how much to reduce the transmit power.
A sample function *p_hm17_TestPowerControl* is supplied and can be compiled with COPTS="-DTEST_POWER_CONTROL". This function reduces one step in case a single PT is subscribed and the FT is on cradle (simulation on dev board via GPIO25) with this function the reduction of Tx RF is of 15dB.

1.7.1.6 MIPS optimization

- Using ELC for DCX (instead of LEC)
- Mutual exclusive between LEC/ELC and CID detector.

1.7.1.7 EEPROM mapping

Available In HTML table per compilation

1.7.1.8 PLL Hot Switch

PLL switch is done automatically by 3 EEPROM values:
- SD02_POWER_CONTROL
- SD02_CLOCK_SPEED_WB
- SD02_CLOCK_SPEED_POLY_WB

The values are combined of high nibble is the location in table of available CLK setting and low nibble which is number of wait states.

The table currently is:
```
SYS0_SCU_AHB_PLL13p8_DIVa_28_28_7,   /*  0 */
SYS0_SCU_AHB_PLL13p8_DIVa_41_41_7,   /*  1 */
SYS0_SCU_AHB_PLL13p8_DIVa_41_20_7,   /*  2 */
SYS0_SCU_AHB_PLL13p8_DIVa_55_28_7,   /*  3 */
SYS0_SCU_AHB_PLL13p8_DIVa_55_55_7,   /*  4 */
SYS0_SCU_AHB_PLL13p8_DIVa_83_28_13,  /*  5 */
SYS0_SCU_AHB_PLL13p8_DIVe_69_69_11,  /*  6 */
SYS0_SCU_AHB_PLL13p8_DIVa_83_41_13,  /*  7 */
SYS0_SCU_AHB_PLL13p8_DIVa_83_41_10,  /*  8 */
SYS0_SCU_AHB_PLL13p8_DIVc_97_97_16,  /*  9 */
SYS0_SCU_AHB_PLL13p8_DIVf_111_28_13, /* 10 */
SYS0_SCU_AHB_PLL13p8_DIVf_111_55_13, /* 11 */
SYS0_SCU_AHB_PLL13p8_DIVf_111_111_13,/* 12 */
SYS0_SCU_AHB_PLL13p8_DIVd_124_41_13, /* 13 */
SYS0_SCU_AHB_PLL13p8_DIVd_124_41_10, /* 14 */
SYS0_SCU_AHB_PLL13p8_DIVd_62_31_10,  /* 15 */
```

First number is ARM CLK, second is AHB CLK and the last is for ADPCM CLK.

1.7.1.9 MCCI USB Stack support

The following changes needed to be done in HW in order for the USB to function correctly:
- U4 – assemble AAT3125 (the same external chip from V1)
- R27,R26,R32,R33 – 0Ohm
- C37,C42,C43,C45 – 1uF
- C128 – 3.3uF
- R88,R89 – 1MOhm

1.7.2 AT commands support

This feature exposes an interface between Host and PP. The Host works as a master and PP works as a slave. The Host and PP are connected via UART or USB Serial Interface (see note 2). Besides the UART interface, two GPIO pin should be assigned to wakeup PP by Host and wakeup Host by PP.
In this document the words in red are new, comparing to the previous version.
Please re-initialize the EEPROM after burning the SW, since in this version we add some parameters and EEPROM structure is changed.

In the AT Command, All digital are in Hex format.
AT+SSCH=80, where 80 is actually 0x80.

Notes:
1. This feature is supported for both WDCT and DECT
2. The USB interface is supported only with the DSPG USB Stack (see 1.7.6)
3. When in Master Mode, to accept a call the link must be released and established again (in contrast with the AT commands document)

For more details, please see Vega_One_AT_Commands □

1.7.2.1 Build
New compilation flag was added: **ATSV** for PT compilation command line
To enable the AT commands, the **CPI** also needs to be set to 1 for the Flat and PT

Example (AT commands over USB):

Flat:
gmake --win32 -f flatdcx.mak MAS=0 DTAM=0 MAS_SP=1 **CPI=1** AEC=0 DSPG_USB=1 USB=1

PT:
gmake --win32 VegaOne=1 DEV=8009 FW=d FDHF=0 **CPI=1 ATSV=1** DSPG_USB=1 USB=1

Note: for AT commands over UART, remove the "DSPG_USB=1 USB=1" compilation flags from the flat and PT.

1.7.2.2 Known bugs
- "AT+STON" is not working. Please use "AT+PTON=0" instead (will be fixed in next release)
- If KTON is used when the speaker is off the state of the TGHF is not correct, and the result is not expected. To avoid this, **always use KTON when Speaker is ON**

1.7.3 Flexible Noise Reduction (FNR) on handset and base

1.7.3.1 Description
The Flexible Noise Reduction (FNR) module performs noise reduction and optional comfort noise generation.
The FNR improves intelligibility of speech in noisy environments.

Flexible noise reduction module is integrated now also on base flow.

When used in the base, the FNR reduces the noise coming from the far end.

A new menu is available on speaker phone on base and handset in order to toggle FNR on / off:
- Speaker on base (SP_ON_BASE): long 0 → 9
- Handset: long 0 → # to send IWU command to FT

1.7.3.2 Build
New compilation flag was added: **FNR_FT** for Flat and FT compilation command line

Example

Flat:

gmake --win32 -f flatdcx.mak DEV=8009 FW=d MAS=0 MAS_SP=1 AEC=1 WBE_PT=1 SP_ON_BASE=1 FNR_FT=1

FT:
gmake --win32 VegaOne=1 DEV=8009 FW=d FDHF=1 SP_ON_BASE=1 **FNR_FT=1**

1.7.3.3 MRR
ROM: 5711 Bytes
RAM: 100 Bytes
MIPS: 5.9 MHz

1.7.4 Flexible Listening Enhancement (FLE)

1.7.4.1 Description
The Flexible Listening Enhancement Module (FLE) improves listening to incoming voice in noisy environment and improves the voice intelligibility. It automatically adjusts hearing loudness of received audio signal according to the acoustic ambient noise

The FLE module adjusts the level and spectral content of a signal in one transmission direction.

The Flexible Noise Estimation module (FNE) is an additional module which is used to analyze a noisy signal. The parameters generated from this analysis can be used as inputs for FLE module.

Being used together helps the user have intelligible speech from the far side, even when user is located in noisy environment.

Important note:
When enabling the FLE feature, the PP's MIPS consumption is higher than the default. The recommended clock configuration for a PP supporting FLE is **97MHz** (default is 83 Mhz).
- SD02_POWER_CONTROL: 0xB4
- SD02_CLOCK_SPEED_WB: 0xB4
- SD02_CLOCK_SPEED_POLY_WB: 0xB4

(See 1.7.1.8 for DCX)

1.7.4.2 Features implemented

- FLE + FNE modules integrated in PT flow.
- New menu on handset to toggle FNE: long 0 -> *
- Parameters available on EEPROM: (please refer to the DSAPI UM for details)

1.7.4.3 Configuration
1.7.4.3.1 FNE
- Lower_Noise_Limit
- Upper_Noise_Limit
- Maximum_Gain

1.7.4.3.2 FLE
- O_TH

1.7.4.4 Build
New compilation flag was added **FLE** for Flat and PT compilation command line.

Example:
NB

Flat-
Gmake --win32 -f flatdcx.mak DEV=8009 FW=d MAS=0 MAS_SP=1 SP_ON_BASE=1 **FLE=1**

PT-
gmake --win32 VegaOne=1 DEV=8009 FW=d **FLE=1**

WB
Flat-
gmake --win32 -f flatdcx.mak DEV=8009 FW=d WB722=1 WB726=3 NB726=2 MAS=0 MAS_SP=1 AEC=1 WBAEC=1 WBE_PT=1 SP_ON_BASE=1 CAT_IQ=1 **FLE=1**

PT-
gmake --win32 VegaOne=1 DEV=8009 FW=d FDHF=1 WBE_ON_PT=1 CAT_IQ=1 DCC=1 **FLE=1**

1.7.4.5 MRR
ROM: 3601 Bytes
RAM: 140 Bytes
MIPS: 5.0 MHz

1.7.5 Software update over USB

1.7.5.1 Description

The Software Update is now supported over USB, on top of the already released UART and External Flash.

The package includes:
- Booter code with DSPG USB Stack (see 1.7.6), with Serial profile
- PC application for Linux and supporting both UART and USB. (Windows will be supported in future releases)
- Support to switch to start SW Update from the Scorpion application (switch to Booter in runtime)

1.7.5.2 Compiliation Options

The following compilation options are used for SW upgrade over USB.

Flat Folder Creation:

tools\gmake *-f flatvone.mak FW=d MAS=0 MAS_SP=1 WB722=2 WB726=2 NB726=2 DSPG_USB=1 USB=1 WBE_PT=1 SP_ON_BASE=1 FWUP=1*

FT (in folder vdsw-ftvone):
gmake --win32 VegaOne=1 DSPG_USB=1 USB=1 SP_ON_BASE=1 FWUP=1

PT (in folder vdsw-ptvone):
gmake --win32 VegaOne=1 DSPG_USB=1 WBE_ON_PT=1 FWUP=1

Note 1: To generate the builds for C00 version, add FW=c
Note 2: For UART upgrade, add FWUP=1 and COMIF=UART and remove DSPG_USB=1 and USB=1.
Note 3: ft*.elf alone does not upgrade the ITCM using Lauterbach. It is recommended to load both ITCM and ft*.elf to get debug symbols.

For enabling the software upgrade over USB / UART the following respective macros has to be enabled in the code.

In USB case, define
SU_XHOST   1
SU_XHOST_USB 1

In UART case, define

SU_XHOST   1
SU_XHOST_UART 1

The above macros are defined in the file **cswup0XDev.h**

The USB and UART are mutually exclusively, so at a time only one can be enabled.
The upgrade over USB/UART expects the IMEM_H image in certain format. The image header describing the image size, checksum, image version, image date has to be appended at the beginning of IMEM_H.

The **mergebin.exe** application during compilation is used to add the image header to IMEM_H and also appends any application data in the form of binary file to the IMEM_H file forming a single image. So the final image would look like

IMAGE HEADER | IMEM_H

This application is running as part of the normal build process, and there is no need to run it individually.

1.7.5.3 Compiling the Linux Host application

The Linux Host application is made available with in the firmware upgrade source folder fwup-src\XHOST.

It can be built by unzipping the zip file swup_linux_host_app. zip and issuing the "make" command.

<>\fwup-src\XHOST\swup_linux_host_app\test\make clean
<>\fwup-src\XHOST\swup_linux_host_app\test\make

The output binary swup_tcx_uart/ swup_tcx_usb will be generated. This can be used to test the Firmware upgrade over UART/USB.

1.7.5.4 Testing the Firmware Upgrade over USB

There are two possible ways for the Firmware upgrade

1) By just booting the target and connecting it to the Linux Host PC over USB.
2) By pressing the key combination Key #1, Key#2, Key #3 simultaneously and booting the target

In both the cases, once the target is connected to the Linux PC, it enumerates as Serial Profile in the Linux PC.

The application swup_tcx_usb can be used from the Linux PC.

Currently the software upgrade over USB is tested using a Linux Host side application.
The USB are enumerated as serial port in Linux PC. In case of USB it is /**dev**/**ttyACM0**
If port is not COM=0, then use command line option –com # (port number)
Eg: swup_tcx_usb –com 2

The software upgrade can be started by executing the application and by entering the option '**f**' and the Image name after it successfully opens the COM port in either case.

Important note: The SW Update over USB when the target is in normal functioning mode is supported only with the DSPG USB Stack (see 1.7.6)

1.7.5.5 Testing the Firmware Upgrade over UART
swup_tcx_uart application is used for testing SW upgrade over UART.

1.7.5.6 Relevant Documents
   o   Software Update Architecture.pdf [41]
   o   USB Stack overview document

1.7.6   DSPG USB stack

This version supports the DSPG USB stack. The USB stack runs on the existing VDSW RTOS, and does not require RTKe support.

The classes that are supported for the DSPG USB Stack for this release are:
   -   Audio: Audio Streaming interface
   -   Communication Device Class (CDC) – Serial interface

The USB Audio profile over DSPG USB stack is integrated by default into the application. The device enumerates as Audio Line 1 and Audio Line 2 in the PC.

Currently the Audio samples are of 16 bit PCM format and sampled at16KHz sampling rate.

The Audio Line is bi-directional and supports both Audio IN and Audio Out.

Currently only Line 1 is connected with Audio flow and Line 2 is available but not integrated with DSP audio flow.

The CDC USB profile over DSPG USB stack is a generic profile which emulates the USB and a Virtual Serial Port which can be used by DECT application as well by calling the appropriate send and receives functions and registering the call back functions to the profile.

Currently this profile is used for Firmware upgrade over USB from the dect application. The profiles is enabled if the software is compiled with **FWUP = 1** flag.

1.7.6.1 Compilation options for DSPG USB stack

Flat Folder Creation:

tools\gmake --win32 -f flatdcx.mak FW=d MAS=0 MAS_SP=1 WB722=2 WB726=2 NB726=2 **DSPG_USB=1 USB=1** WBE_PT=1 SP_ON_BASE=1 CAT_IQ=1

FT (in folder vdsw-ftvone):
gmake --win32 VegaOne=1 **DSPG_USB=1 USB=1** SP_ON_BASE=1 CAT_IQ=1 COPTS="–DSUPPORT_12_HS=1"

PT (in folder vdsw-ptvone):
gmake --win32 VegaOne=1 **DSPG_USB=1** WBE_ON_PT=1 CAT_IQ=1 COPTS="–DSUPPORT_12_HS=1"
Note: To generate the builds for C00 version, add FW=c

Important Note:

The Audio over USB requries the AEC option to be disabled in speaker flow

1.7.6.2 Compilation flags for MCCI USB Stack
The MCCI USB Stack is still supported along with DSPG USB stack. The compilation options for the MCCI USB stack remains same as per to the previous releases.

tools\gmake --win32 -f flatdcx.mak FW=d MAS=0 MAS_SP=1 WB722=2 WB726=2 NB726=2 VSP=1 USB=1 WBE_PT=1 WBAEC=1 AEC=1 SP_ON_BASE=1 CAT_IQ=1
FT (in folder vdsw-ftvone):
gmake --win32 VegaOne=1 VSP=1 USB=1 FDHF=1 SP_ON_BASE=1 CAT_IQ=1 COPTS="–DSUPPORT_12_HS=1"

PT (in folder vdsw-ptvone):
gmake --win32 VegaOne=1 VSP=1 WBE_ON_PT=1 CAT_IQ=1 COPTS="–DSUPPORT_12_HS=1"
Note: To generate the builds for C00 version, add FW=c

1.7.6.3 Testing Audio over USB in DSPG_USB stack
The DSPG USB stack when enabled the device enumerates itself as a Audio Line in the PC. With two lines Line 1 and Line 2.

The Audio can be routed to the Speaker on the Base station by pressing the "2F" key combination.

1.7.7 Polyphony on base

Polyphonic ringer is now supported also in the base. The solution was ported from the Portable side.

For details, please see □(Scorpion_polyphonic_on_base.doc)

Build
To enable the polyphonic ring on base, you have to add the compile switch "POLYPHONIC_ON_BASE=1" for generation of flat directories and building of FT image. By default, the compile switch POLYPHONIC_ON_BASE is 0.

Example

Flat:
tools\gmake --win32 -f flatdcx.mak DEV=8009 FW=c MAS=0 MAS_SP=1 AEC=1 WBE_PT=1 SP_ON_BASE=1 **POLYPHONIC_ON_BASE=1**

Important note: Before generation of flat directories, you have to copy the midi files from directory pt-com to ft-com.

FT:
gmake --win32 VegaOne=1 DEV=8009 FDHF=1 SP_ON_BASE=1 **POLYPHONIC_ON_BASE=1**

1.7.7.1 MMI
To test the polyphonic ring on the base, you have to add p_mi42_PolyRingHandle into FTMI() at file bmi12stm.c and then press key F->3->1 to play the polyphonic ring (same as handset).

1.7.7.2 Restrictions
Due to MIPS isseus this feature needs to exclude either CAT_IQ=1 (for NB products) or PSTN=1 (for non-PSTN products that require WB voice).

1.7.8 WDCT stabilization and enhances

WDCT variant was partially stabilized for this drop. (See PR fixes for some issues that have been solved).
It was not tested

1.7.9 Headset support

1.7.9.1 Description
This release supports the Hydra Headset MMI. This MMI allows a simple operation of a headset with 4 buttons: Talk, Mute, Volume up and Volume down.

Key features and manual:

Functionality	Operation
Off cradle – On hook	LED flashes every 8 seconds to easily locate the unit
Mute function	Mute Button
Low battery indicator	Low battery blink on LED + Beep
Volume control	Volume Buttons (Up/Down) Each volume change causes a beep. When reaching the max \ min volume a warning beep is played.
Off hook	When unit is taken off the cradle then it goes off hook automatically. LED will be constantly ON. When put on charger automatically goes on-hook.

	When switching from off-hook to on-hook and vice versa a beep is played.
Cancellation of talk button when on cradle	Supported
Registration	Long press on Talk button when unit is not registered. Long press on Mute button when unit is registered. Registration code is 0000
Charger functionality	Integrated driver. LED flashes every 2 seconds while charging. When is done LED is constantly ON
Audio quality options	supports NB and WB
Audio enhancement methods	WBE, FLE and FNR are supported
development and debugging	Includes IIC test menu
TBR6	long press on mute only at startup

The MMI changes were done in hmi15bsm.c.
For state machine description see [46]
For Hydra HW Reference design see [49]

1.7.9.2 Build
Compilation is by COPTS="-D**HYDRA_HEADSET**"

Flat:
gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 WB722=1 NB726=1 MAS=0 MAS_SP=1 WBE_PT=1 CAT_IQ=1

 Headset (PT):
gmake --win32 DCX_CHIP=DCX79 WBE_ON_PT=1 CAT_IQ=1 COPTS="-DLI_ION -D**HYDRA_HEADSET**"

1.7.10 DCX78 support

1.7.10.1 Overview
The DCX78 chip family is a new DSPG chip family based on the DPU of VegaOne family and the APU of the DE family.
The DPU is identical to VegaOne PNX8009 and the APU is identical to the one of DCX79.
The DPU exists in two variants, one with 512 kByte Flash program memory ("DCX78-FLASH") and the other with up to 320 kByte Mask-ROM program memory ("DCX78-ROM")

1.7.10.2 Build
To build a DCX78 use **DCX_CHIP=DCX78 in the flat and in the compilation.**
The Flat will reside in vdsw-ptdcx78 and vdsw-ftdcx78.

Example:
Flat:
tools\gmake --win32 -f flatdcx.mak **DCX_CHIP=DCX78** MAS=0 MAS_SP=1 WB722=1 NB726=4 WBE_PT=1 CAT_IQ=1

Compile (in folder vdsw-ptdcx78):
gmake --win32 DCX_CHIP=**DCX78** CAT_IQ=1 WBE_ON_PT=1

1.7.11 Color LCD on EBI

1.7.11.1 Specifications of the supported LCD

- 1.86" 132 x 162 RGB
- Model number: 8067CPBWCL018
- IC Samsung S6B33BF

1.7.11.2 Hardware

- The screen is assembled on the: "Memory and color LCD adaptor – DXMEMA".
- The screen is connected to CS1. (CS0 = NorFLASH, CS2 = SRAM)

1.7.11.3 Compilation for DCXD9

Flat:
tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 DEV=xxEF00F FW=dcx_c MAS=0 MAS_SP=1 AEC=1 WBE_PT=1 SP_ON_BASE=1

FT:
gmake --win32 DCX_CHIP=DCX79 DEV=xxEF00F FW=dcx_c FDHF=1 SP_ON_BASE=1 MULTI_PARTY=1 COPTS="-DDCXDEVMB=1 -DEEP_SIZE=4096" COLOR_LCD=1 DCC=1

PT:
gmake --win32 DCX_CHIP=DCX79 DEV=xxEF00F FW=dcx_c FDHF=1 WBE_ON_PT=1 COPTS="-DDCXDEVMB=1 -DEEP_SIZE=4096" COLOR_LCD=1 DCC=1

1.7.11.4 Testing

Use EBI_TEST=1 in PT/FT compilation to enable testing
In the factory reset menu, select 'y' (" y drivers system test ") and then select 'm' (" m EBI memory test").

The following menu is available:
- Function call duration
- Function call power consumption
- LCD test
- Full read write test
- Set AHB_clk to 27 Mhz
- Set AHB_clk to 55 Mhz
- Disable EBI
- Go idle for wait 3 sec
- LCD contrast set
- LCD brightness

1.7.12 Version display

1.7.12.1 Description

The Software version can be displayed on the LCD in this version both for FP and PP
To activate this feature press F-4 in the FP and F-4-4 in the PP.
The version number and DSP API version number will be displayed for 3 seconds on the LCD.

Example:
Ver = 3.12.0
API VER = 721

1.7.13 G711

1.7.13.1 Description

Support of the standard ITU-T G.711codec added in the below task, the max number of available instances of the G711A/U decoder/encoder is 5, the G711 uses long slots and therefore defined for the CATIQ builds only .

The G711 added using the open codec interface (see relevant document) , the open codec define new codec list and new priority between the codecs.

The G711A/U is the highest one of the NB codecs. (Can be change by customer)
The priority in our implementation is as below -

G_st_hl00_Codec.G722
G_st_hl00_Codec.G711A
G_st_hl00_Codec.G711U
G_st_hl00_Codec.G726
G_st_hl00_Codec.G729_1

1.7.13.2   Compilation flags:
G711 flag in the flag generation is reused, optional value 1-5.

FLAT-
gmake --win32 -f flatdcx.mak DEV=8009 FW=d WB722=1 G711=1 NB726=2 MAS=0 MAS_SP=1 AEC=1 WBAEC=1 WBE_PT=1 SP_ON_BASE=1 CAT_IQ=1

FT (in vdsw-ftvone)
gmake --win32 VegaOne=1 DEV=8009 FW=d FDHF=1 SP_ON_BASE=1 CAT_IQ=1

PT (in vdsw-ptvone)
gmake --win32 VegaOne=1 DEV=8009 FW=d FDHF=1 WBE_ON_PT=1 CAT_IQ=1

1.7.14 No Emission mode for DCX79

No emission mode is validate for DCX79 in this release.

1.7.15 DRPC support

Please see the following documents:
- DRPC_SoftwareChangeValidation.pdf [48]
- DRPCforWDCT[47]

2 Software Configuration

2.1 DECT VARIANTS

Both FT and PT fully support the usage of extended carriers and any number of shorter carrier lists. For the FT configured for US_DECT, DECT_60, or DECT_60_CMD60 that means, that in the radio file, only extended carriers 23-27 are set.
The PT follows what it receives in the Q0 and Q2 message.
The existing EEPROM location SD02_US_DECT is used to configure the SW:

Value	Name	Frequency band	Carrier numbering in normal mode	Carrier numbering when in TBR6 testmode	Meaning
0	EU_DECT	1880-1900	9-0	9-0	Normal DECT
1	US_DECT	1920-1930	23-27	4-0	US DECT with channel numbering 23-27 except in TBR6 mode for CMD60 compatibility. Specific FCC transmit template. Reduced TX power below 20.6dBm. In TBR6 mode, set the CMD60 with channel offset - 18. Defined for legacy RF chip family.
2	US_DECT_CLASSIC	1920-1930	0-4	4-0	Original US DECT implementation with channel numbering 0-4 except in TBR6 mode for CMD60 compatibility. Specific FCC transmit template. Reduced TX power below 20.6dBm. In TBR6 mode, set the CMD60 with channel offset - 18. This mode should only be used when compatibility with initial DECT_US software version is necessary.
3	KOREAN	1787-1791	3-5	6-8	KDECT For TBR6 testing need to use off the shelf Freq converter with CMD60 offset of 0 This Variant is available on in DCX
5	DECT_60	1920-1930	23-27	23-27	US DECT with channel numbering 23-27 and fully compliant with ETSI 300 175-2 Annex F2. Do not support CMD60 in TBR6. Transmit power template is ETSI compliant. Reduced TX power to below 20.6dBm.
6	DECT_60_CMD_60	1920-1930	23-27	4-0	US DECT with channel numbering 23-27 except in TBR6 mode for CMD60 compatibility. Transmit power template is ETSI compliant. Reduced TX power to below 20.6dBm. In TBR6 mode, set the CMD60 with channel offset - 18.
7	LATAM_CMD_60	1910-1930	18-27	9-0	Latin America ETSI DECT implementation with channel numbering 18-27 except in TBR6 test mode for CMD60 compatibility. In TBR6 mode, set the CMD60 with channel offset - 18.
8					Reserved
9	TAIWAN_DECT_CMD_60	1880-1895	9-2	9-2	Taiwan ETSI DECT implementation with only channel 9-2.

10					Reserved
0B	LM06_BRAZIL_DECT	1911.168–1918.080	5	5	0E: DECT in Brazial with 5 carriers (1911.168, 1912.896,1914.624,1916.352,1918.080)

2.2 Implementation Details:

FT will now broadcast for US_DECT, DECT_60 and DECT_60_CMD60 (if not in TBR6):
- A Q0 message indicating that NO standard carriers are supported, but only extended carriers
- A Q2 message indicating that the extended carriers 23-27 are supported
- The PSCN counter as indicated in the Q0 messages counts 23-27

PT configured for US_DECT, DECT_60 and DECT_60_CMD60 (if not in TBR6):
- RSSI scan made on carriers 23-27 (the US DECT carriers numbers)
- Follows PSCN of base and sets up traffic bearers on these carriers numbers only.

If the FT or PT run TBR6 mode and are configured for US_DECT or DECT_60_CMD60 they will automatically switch to channel numbering 0-4 to allow use of Rhode & Schwarz CMD60 test equipment, which does not support the extended carrier numbering.
The former US DECT implementation of DSPG can be retained by setting the EEPROM[SD02_US_DECT] to 2 (LM06_US_DECT_CLASSIC).

For US DECT systems the software checks the values stored in the EEPROM for the MAX_USABLE and LOWER_RSSI_LIMIT locations at start up. If these locations are zero they are updated to default values.

2.3 ATE Test Modes

In Factory reset menu, when setting up an Rx slot, the first question is now to select a GPIO on which to monitor the receive data. If FF is entered no GPIO is enabled, exactly which GPIOs can be used is dependent on the configuration in which the software is running. Using the DSPG adapter board, GPIOs 12,16,17,19 and 27 have all been tested, others are probably also available. Note the value for the GPIO needs to be entered in hexadecimal. After selecting the instance a second new question asks for which sync pattern should be used. This enables the BER test to be run using a transmission from either a base or a handset. The default is to use FP sync pattern, key in y to use the PP sync pattern. The other questions are as previous releases. The GPIO is reset when the ATE test mode is left. When setting up Tx slots the second question selects whether normal or long preamble slot formats are used, answering y selects normal preamble, any other answer and the long preamble is used as in previous releases.

2.4 Customizing of the EEPROM

The EEPROM contains a section holding DSP and PSTN specific data that allow to adapt the DSPG DECT Software Package to country specific needs. The layout of this section and the default values which are used when the factory reset menu entry number 9 ('Init to preset values') is selected are described in the document [3]. These default values are applicable for DSPG hardware used in Germany.
The customer has to set up these EEPROM locations according to his specific hardware requirements and the PSTN of the country where the hardware shall be used.

3 Hardware and Tools Considerations

3.1 Tools

VegaOne and DCX are based on ARM9 architecture; no ETM is available and hence there is no trace capability. The passive lauterbach debuggers LA7701 and LA7702 do not support ARM 9. In order to support ARM9 on the lauterbach, a new ARM licence key, e.g. LA7742 is needed.

3.2 Creating Executable files

The object files coming with this release are compiled and linked with RVCT3.0 RealView (ARM) compiler and linker.

In order to maintain different ARM compiler versions in parallel on a Windows environment it is recommended to use the ARM SuiteSwitcher tool. This tool allows you to switch between different versions of compilers and ARMulators. It changes the system path and some environment variables to have the correct set-up available. You can get the latest version of SuiteSwitcher at:

http://www.arm.com/support/downloads/info/4627.html

Note that the DSP flow generation tool needs PERL version 5.6.1 or higher.

4 Build Details

To compile the PNX8001, PNX8002, PNX8003, PNX8010 and PNX8011 versions, please refer to [26]

To compile the DCXxx008, DCXxx00B, DCXxxEF00F versions, please refer to [26]

The following cases are configuration examples that can be applied to a SW project. Many combinaiton are possible. Depending on wanted features for a project. Customer support can provide advice for the compiler switches to use.

Important notes:
   Important notes:
   All the libraries will be create in 3 instances (*vone, *dcx79, *dcx78)
   All builds should run from flatdcx (no need for flatvone). one of the following parameters should be added to the flat command:
   VegaOne=1 or DCX_CHIP=DCX78 or DCX_CHIP=DCX79
   The amount of CODECs for the Flat should be set according to the maximum simultaneous calls of the same CODEC supported by the FP product. For the PP, it is enough to use one of each CODEC which needs to be supported by the product.
   The CODECs are not mutually exclusive.
   Each CODEC added in the flat is allocating ROM and RAM, and consumes MIPS, even when not used. Please take this into consideration when setting the amount of supported CODECs. For DCX79 platforms, the g.726 and g.722 CODECs are in HW, and therefore consume very little ROM and MIPS.

DCX Cases:

Case 1:   VLE NB for DCX79

Note: VBR DTAM and 1 PSTN line are included by default

tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 MAS=0 MAS_SP=1

FT (in folder vdsw-ftdcx79):
gmake --win32 DCX_CHIP=DCX79

PT (in folder vdsw-ptdcx79):
gmake --win32 DCX_CHIP=DCX79

Case 2:   VLE CATIQ 1.0 for DCX79 with DTAM, SPK phone on base, 4*G726, 4*G722, 1*IOM, 1 PSTN, FDHF, CAT IQ 1.0, DATA_CALL, Multi bearer, SMS, US CONF

tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 FW=dcx_c MAS=0 MAS_SP=1 WB722=3
NB726=4 AEC=1 WBAEC=1 WBE_PT=1 CAT_IQ=1 IOM16LIN=1 USCONF=1 SP_ON_BASE=1

FT (in folder vdsw-ftdcx79):
gmake --win32 DCX_CHIP=DCX79 CAT_IQ=1 DATA_CALL=1 IOM_LINES=1 MMC=1 SMS=1
FDHF=1 USCONF=1 SP_ON_BASE=1

PT (in folder vdsw-ptdcx79):

gmake --win32 DCX_CHIP=DCX79 WBE_ON_PT=1 CAT_IQ=1 DATA_CALL=1 USCONF=1 MMC=1 SMS=1

Note: For products that require less than 5 CODECs, the amount of WB722 and NB726 may be reduced.

Case 3:   VLE CATIQ 1.0 for DCX79 with AFC

tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 MAS=0 MAS_SP=1 WB722=3 NB726=4 AEC=1 WBAEC=1 WBE_PT=1 SP_ON_BASE=1 CAT_IQ=1

FT (in folder vdsw-ftdcx79):
gmake --win32 DCX_CHIP=DCX79 FDHF=1 CAT_IQ=1 SP_ON_BASE=1 EEPONFLASH=1

PT (in folder vdsw-ptdcx79):
gmake --win32 DCX_CHIP=DCX79 CAT_IQ=1 FDHF=1 WBE_ON_PT=1 EEPONFLASH=1 COPTS="-DAFC"

Note: For products that require less than 5 CODECs, the amount of WB722 and NB726 may be reduced.

Case 4:   VLE CATiq 1.0 for for DCX79 with Data call and EEPROM on FLASH

tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 MAS=0 MAS_SP=1 WB722=3 NB726=4 AEC=1 WBAEC=1 WBE_PT=1 CAT_IQ=1

FT (in folder vdsw-ftdcx79):
gmake --win32 DCX_CHIP=DCX79 CAT_IQ=1 DATA_CALL=1 EEPONFLASH=1

PT (in folder vdsw-ptdcx79):
gmake --win32 DCX_CHIP=DCX79 WBE_ON_PT=1 CAT_IQ=1 DATA_CALL=1 EEPONFLASH=1

Note: For products that require less than 5 CODECs, the amount of WB722 and NB726 may be reduced.

Case 5:   VLE NB for DCX79 with MAS, FDHF on base, SMS, debug on UART port

tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 AEC=1 SP_ON_BASE=1 ICELP=1 MAS=1 MAS_SP=0

FT (in folder vdsw-ftdcx79):
gmake --win32 DCX_CHIP=DCX79 SP_ON_BASE=1 ICELP=1 COMIF=UART SMS=1 SMS1PLUS=1

PT (in folder vdsw-ptdcx79):
gmake --win32 DCX_CHIP=DCX79 SMS=1 SMS1PLUS=1 COMIF=UART

Case 6:   VLE CATIQ 1.0 for DCX78 PT and VegaOne FT

tools\gmake --win32 -f flatdcx.mak MAS=0 MAS_SP=1 WB722=1 WB726=3 NB726=2 AEC=1 WBAEC=1 CAT_IQ=1 SP_ON_BASE=1

FT VegaOne 8009 with SPK on base

(in folder vdsw-ftvone):
```
gmake --win32 VegaOne=1 FDHF=1 CAT_IQ=1 SP_ON_BASE=1
```

```
tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX78 MAS=0 MAS_SP=1 WB722=1 NB726=4
WBE_PT=1 CAT_IQ=1
```

PT DCX78 (in folder vdsw-ptdcx78):
```
gmake --win32 DCX_CHIP=DCX78 CAT_IQ=1 WBE_ON_PT=1
```

Case 7: *VLE NB for DCX78 with FNR on PT and SPK on Base*

```
tools\gmake  --win32 -f flatdcx.mak DCX_CHIP=DCX78 DEV=8009 FW=d MAS=0 MAS_SP=1 AEC=1
WBE_PT=1  SP_ON_BASE=1 RF19APU=1 FNR=1
```

FT (in folder vdsw-ftdcx78):
```
gmake  --win32 DCX_CHIP=DCX78  DEV=8009 FW=d FDHF=1 SP_ON_BASE=1 MULTI_PARTY=1
```

PT (in folder vdsw-ptdcx78):
```
gmake  --win32 DCX_CHIP=DCX78  DEV=8009 FW=d FDHF=1 WBE_ON_PT=1 FNR=1
```

Case 8: *VLE for DCXD9 with G711*

```
Tools\gmake --win32 -f flatdcx.mak DCX_CHIP=DCX79 DEV=xxEF00F FW=dcx_c WB722=1 G711=3
NB726=2 MAS=0 MAS_SP=1 AEC=1 WBE_PT=1 WBAEC=1 SP_ON_BASE=1 CAT_IQ=1
```

FT-(in folder vdsw-ftdcx79):
```
gmake --win32 DCX_CHIP=DCX79 DEV=xxEF00F FW=dcx_c CAT_IQ=1 FDHF=1 SP_ON_BASE=1
COPTS="-DDCXDEVMB=1 -DEEP_SIZE=4096" 14SEG_LCD=1 DCC=1 NEMO=1
```

PT-(in folder vdsw-ptdcx79):
```
gmake --win32 DCX_CHIP=DCX79 DEV=xxEF00F FW=dcx_c CAT_IQ=1 FDHF=1 WBE_ON_PT=1
COPTS="-DDCXDEVMB=1 -DEEP_SIZE=4096" 14SEG_LCD=1 DCC=1 NEMO=1
```

VegaOne Cases:

Case 9: *VLE NB for PNX8009*

```
tools\gmake --win32 -f flatdcx.mak MAS=0 MAS_SP=1
```

FT (in folder vdsw-ftvone):
```
gmake --win32 VegaOne=1
```

PT (in folder vdsw-ptvone):
```
gmake --win32 VegaOne=1
```

Note: To generate the builds for C00 version add FW=c

Case 10: *VLE WDCT for PNX8009 with Data call, FW=d and MASK=0*

```
tools\gmake --win32 -f flatdcx.mak FW=d WB726=2 NB726=2 MAS=0 MAS_SP=1 AEC=1
WBE_PT=1 SP_ON_BASE=1 WDCT=HE
```

FT (in folder wdct-ftvone):
gmake --win32 VegaOne=1 FW=d FDHF=1 SP_ON_BASE=1 WDCT=HE DATA_CALL=1 NB_DH=1 COPTS="-DLM00_ATE_POWER_LEVEL"

PT (in folder wdct-ptvone):
gmake --win32 VegaOne=1 FW=d FDHF=1 WBE_ON_PT=1 WDCT=HE DATA_CALL=1 NB_DH=1 COPTS="-DLM00_ATE_POWER_LEVEL"

Case 11: VLE for PNX8009 with Catiq1.0, Software Update and DSPG USB

tools\gmake --win32 -f flatdcx.mak FW=d MAS=0 MAS_SP=1 WB722=2 WB726=2 NB726=2 DSPG_USB=1 USB=1 FWUP=1 WBE_PT=1 SP_ON_BASE=1 CAT_IQ=1

FT (in folder vdsw-ftvone):
gmake --win32 VegaOne=1 DSPG_USB=1 USB=1 SP_ON_BASE=1 CAT_IQ=1 FWUP=1 COPTS="-DSUPPORT_12_HS=1"

PT (in folder vdsw-ptvone):
gmake --win32 VegaOne=1 DSPG_USB=1 WBE_ON_PT=1 CAT_IQ=1 FWUP=1 COPTS="-DSUPPORT_12_HS=1"

Case 12: VLE for PNX8009 with CAT IQ 1.0 , FNR on base and 1 IOM line on base

Note: VBR DTAM and 1 PSTN line are included by default (can be disabled)

tools\gmake --win32 -f flatdcx.mak MAS=0 MAS_SP=1 WB722=2 WB726=2 NB726=2 FNR_FT=1 IOM16LIN=1

FT (in folder vdsw-ftvone):
gmake --win32 VegaOne=1 CAT_IQ=1 FNR_FT=1 IOM_LINES=1

PT (in folder vdsw-ptvone):
gmake --win32 VegaOne=1 CAT_IQ=1

Case 13: VLE for PNX8009 with WDCT + AT commands

tools\gmake --win32 -f flatdcx.mak MAS=0 MAS_SP=0 POLYPHONIC=0 CPI=1 DSPG_USB=1 USB=1 WDCT=HE WBE_PT=1

FT (in folder wdct-ftvone):
gmake --win32 VegaOne=1 FW=d WDCT=HE DATA_CALL=1 DSPG_USB=1 USB=1 NB_DH=1

PT (in folder wdct-ptvone):
gmake --win32 VegaOne=1 DEV=8009 FW=d CPI=1 ATSV=1 DSPG_USB=1 USB=1 WDCT=HE WBE_ON_PT=1 POLYPHONIC=0

Note: for AT commands over UART, remove the "DSPG_USB=1 USB=1" compilation flags from the flat and PT.

5 Tests

This delivery has been compiled under Solaris and Windows.
This release was tested for:

- SW testing for all the cases in chapter 4 (only FW d and dcx_c)

5.1 Known Bugs

ILD53#1828	G727 & G711 loud noise when doing call transfer
ILD53#1388	Conference with two external line and two HS does not work in all the cases when calls are with different CODECs
NBGD53#1087	Problem with silmultaneous access of DTAM menu and Call transfer

5.2 Restrictions

- DSPG USB Stack is still going through thorough testing. It is fully validated for "simple" flows which require little audio processing (passing data from ADPCM to USB and back).
- DSPG USB Stack does not support Control for Audio profile (will be supported in future releases)
- FNR on base and Polyphony on base are not supported in the same build for this release (will be supported in future releases)
  See 1.7.7.2 for Polyphony restrictions
- FNR on PP can be only used with AEC and WBE. The FNR flag enables the Flexible Noise Reduction feature on the PT side. The FNR feature is demonstrate in the Scorpion SW for several variant only, please use AEC and WBE on PT to retrieve the correct data flow for the feature
- For NB726 – currently we are supporting only 0-4
- G711 feature must be built with WB722. This restriction will be removed in future releases.
- FLE is supported by the reference code in:
  - o NB PT: minimal flow (without WBE and without AEC)
  - o WB PT: supported only with flow which includes WBE and FDHF)
- FNR is supported by the reference code in:
  - o Any FT build which includes PSTN can support FNR
  - o

FNR on base - it is supported regardless to the build if PSTN line exist.
FNR for the PT build exist for both NB and WB with WBE and FDHF. (for the WB it is WBAEC)

6 Delivery Structure

This chapter describes the release structure of the DSPG DECT Software Package for this delivery. All the directory names follow the following naming convention:
- All the names with a prefix "ft" contain deliverables only used for the fixed part (base).
- All the names with a prefix "pt" contain deliverables only used for the portable part (handset).
- All others contain deliverables for both the fixed part and portable part.

The files **flatvone.mak**, flatdcx.mak, **flatflop.mak** and the following directories (see the table below for a brief overview of the directory contents) are delivered:

Note: Since this is a partial source code delivery, not all the source files are delivered as source.

Directory	FT/PT	Remark
Common	ALL	system files, irq and fiq interrupt handlers, symbol files, map files and tclib files
Common-hl	ALL	function and data structure prototypes used by MLP
Documents	ALL	user manuals, design documents and application notes.
Driver	ALL	drivers for both ft and pt
Dspapi	ALL	DSP libraries, flows, flow generation tools, DSP API sources
Ft-adap-dect	FT	Adaptation Layer for FT
ft-com	FT	ft clip files, drivers and DSP flows
Ft-cpi	FT	Ft CPI functions and data
ft-hl	FT	ft CM, CC, MLP, MM, PI and SS files
ft-mac-dect	FT	FT DECT lower MAC and higher MAC header files, source files and libraries
Ft-mac-wdct	FT	FT WDCT lower MAC and higher MAC header files, source files and libraries
ft-mmi	FT	ft MMI source files, PILL files (binary)
ft-sms1	FT	ft SMS1 files
Fwup-src	ALL	SW update files
Os	ALL	operating system files
Pt-adap-dect	PT	Adaptation Layer for PT
pt-com	PT	pt common files, drivers and MIDI files for MAS (dat format)
Pt-cpi	PT	pt CPI functions and data
pt-hl	PT	pt CC, MLP, MM, PI and SS files
pt-mac-dect	PT	PT DECT higher MAC and Lower MAC header files, source files and libraries
Pt-mac-wdct	PT	PT WDCT higher MAC and Lower MAC header files, source files and libraries
pt-mmi	PT	pt MMI files
pt-sms1	PT	pt SMS1 files

pt-wt-hl	PT	Walkie Talkie higher layer files
pt-wt-mac- dect	PT	DECT Walkie Talkie MAC layer files
Pt-wt-mac-wdct	PT	WDCT Walkie Talkie MAC layer files
Tools	ALL	various perl scripts, DOS and UNIX programs

6.1 Detailed List of Deliverables

In the following, a detailed list of all the directory contents are listed except the "dspapi" directory.

common
4kzero.dmy adsmemVOnePeripheralMap.map irq.h BMPV200BBf.sym
adsmemVOneRomSize.h MPV301OneC.sym adsmemVOneVLE.map   macrodef.mak
DECTBMPV162.sym adsmemVOneVSP.map makedspapi.mak DECTBMPV164LFb.sym
adsmemVSP.map   mem.map DECTBMPV164TBhBBe.sym   adsmemXS.map
WDCTBMPV162.sym   cap03def.h WDCTBMPV164LFb.sym cbm00hwr.h
WDCTBMPV164TBhBBe.sym   cbm01hwa.h adsLiteonBBFlash.map   cbm02int.h
adsLiteonLFMixBMP.map   cmi01def.h tclib.h adsLiteonLiteFlash.map csys0reg.h
tclibd.lib adsLiteonTBDemo.map csys2vpb.h tclibd_rvc.lib adsXSonLiteFlash.map
tclibi.lib adsXSonTBDemo.map csys4uc.h tclibi_putbuf1024_rtk_rvc.lib adsmem.map
csys5os.h tclibi_putbuf2048.lib adsmemBBROM.map   tclibi_putbuf2048_rvc.lib
adsmemLite.map csys6mu.h tclibi_rtk.lib   adsmemLiteMixBMP.map tclibi_rvc.lib
adsmemTBRAM.map csyssram.h   tclibu.lib adsmemTBROM.map
tclibu_putbuf1024_rtk_rvc.lib   adsmemVOne.map csysxram.h tclibu_putbuf2048_rvc.lib
adsmemVOneFW_1.map   embedded.h tclibu_rvc.lib adsmemVOneFW_2.map
ssw01fiq.s ssw01irq.s startup.s csys3ipi.c csyssram.c csysxram.c fiqdummy.c
irqdummy.c IntelHexConverter IntelHexConverter.exe tclibi_putbuf2048_rtk.lib
tclibu_putbuf2048.lib   tclibu_putbuf2048_rtk.lib

common-hl
chl07lux.h

driver
cdr00int.h cdr04iic.h cdr10int.c cdr14iic.c cdr18uat.c cdr30fre.c cds30pwx.h
cdr01lcd.h cdr05key.h cdr11lcd.c cdr15dbk.c cdr20fre.h cdr33cow.c cds31pwx.c
cdr02aud.h cdr07tim.h cdr12aud.c cdr15key.c cdr21stp.s cds14arm.c
cdr03eep.h cdr08uat.h cdr13eep.c cdr17tim.c cdr23cow.h cds28pwi.c cds31pwx.c

ft-adap-dect
bad10mcs.c bad11mas.c bad12oth.c bad14rm.c bmcrx.h csfcap.h   csfcm.h
fp_dummy_hl_tn.c   funwk.h mcc1753.h mfpmasap.h   mfpmcsap.h

ft-com
bcl00int.h dfl_fl_tb30_d53.pl bcl01dat.h dfl_fl_tb30pt.pl bsd02eep.h dfl_fla_anyline.pl
bsd09cnf.h dfl_fla_bb_anyline.pl bsd09ddl.ddl dfl_fla_bb_mas_wb_pt.pl bdr02aud.h
dfl_fl_bb20_D75.pl dfl_fla_dtam_icelp_small_d53.pl bdr09pst.h dfl_fl_bb20_d53.pl
dfl_fla_pp_mas_usb.pl dfl_fl_bb30_d53.pl dfl_fla_pt.pl dfl_fl_bb30_tb30_pt.pl makefile
bdr22chl.h dfl_fl_bb30e_D75.pl master.def bdr24dlm.h dfl_fl_bb_anyline.pl master_USB.def

bcl11vm.c bcl12stm.c bdr12aud.c bdr19pst.c bdr32chl.c bdr34dlm.c bcl10int.c

bsd09dcp.ddl dfl_fl_bb40_anyline_D82.pl dfl_fl_bb40_g722_anyline.pl
dfl_fl_bb40comb_anyline_D82.pl dfl_fl_bb_D82.pl dfl_fla_bb_D82.pl

ft-cpi
bcp00int.h bcp11stk.c bcp12app.c

ft-hl
bhl00int.h bhl06cm.h bhl22mls.sdl bhl25sss.sdl bhl01dat.h bhl09prc.h
bhl02mlp.h bhl23ccs.sdl bhl26cms.sdl bhl03cc.h bhl56chs.sdl bhl04mm.h bhl24mms.sdl
bhl36ch.h bhl05ss.h bhl37cdc.h bhl15ssv.c bhl11dat.c bhl19prc.c

ft-mac-dect
blm09use.h libfpbmpvone-mix.lib bhm00int.h blm00int.h libfplmacvone-2s-mix.lib
bhm01dat.h bhm12rms.sdl blm01dat.h libfplmacvone-mix.lib bhm02rms.h blm04rx.h
buaa3545.c libfprambmpvone-mix.lib bhm07use.h blm05tx.h blm06rf.h
bhm10int.c bhm14bcc.c bhm15mbc.c bhm17use.c blm16rf.c bv1rf.c bhm11dat.c bhm13rm.c
blm19use.c blm16rf.c bhm18mmc.c
libfplmacvone-2s-long.lib libfplmacvone-2s-long-ip.lib libfprambmpvone.lib

ft-mac-wdct
bhm00int.h blm00int.h bhm01dat.h bhm12rms.sdl blm01dat.h libfplmacvone-mix.lib
bhm02rms.h blm04rx.h buaa3548.c libfprambmpvone-mix.lib bhm07use.h blm05tx.h
blm06rf.h bhm08fsh.h blm01dat.h blm09use.h buaa3658.c
bhm10int.c bhm14bcc.c bhm15mbc.c bhm17use.c blm16rf.c bv1rf.c bhm11dat.c bhm12rms
bhm13rm.c blm19use.c bhm18mmc.c bhm28fss.c libfpfhevone.lib

ft-mmi
PrepFlash_TB2B_DACKN24.bin bmi14bsp.c bmi19dam.bzp bmi28pll.h bmi00int.h
bmi15ftd.bzp bmi19dam.c bmi29pll.bin bmi41bsm.c bmi01dat.h bmi15ftd.c bmi21rac.h
bmi30pll.bin bmi41bsm.h bmi10int.c bmi16ftl.bzp bmi22dam.h bmi31rac.c bmi42vm.c
bmi11spr.c bmi16ftl.c bmi23dh.c bmi32dam.c mmi_demo_pill bmi12stm.c bmi16ftl.h
bmi26pll.bin bmi33vm.c bmi40stm.h bmi13vm.c bmi17sms.c bmi27pll.h bmi34mwi.c
bmi14bsp.bzp bmi18vms.c bmi28pll.bin bmi40stm.c

ft-sms1
bms00int.h bms01dat.h bms13bsm.bzp bms10int.c bms11vm.c bms12stm.c bms13bsm.c

os
cos00int.h cos04msg.h cos09use.h cos01dat.h cos05mem.h cos02run.h cos07dbg.h
cos03tim.h cos08trc.h cos19use.c cos12run cos18trc.c cos11dat.c cos15mem.c cos10int.c
cos13tim.c cos14msg.c cos20knl.c

pt-adap-dect
bmcdb.h bmcldc.h bmcrssi.h bmcrx.h bmcsacq.h had10mcs.c had11mas.c had12oth.c
had13llm.c had14rm.c mcc1753.h mccident.h mppdbc.h mppmasap.h mppmbc.h
mppmcsap.h mpptm.h pp_dummy_hl_tn.c

pt-com
cop_show.dat echo_beach.mid master_USB.def crazy_latin.mid funk.mid sd02eep.h
pina_colada.dat dfl_fl_bb30_tb30_pt.pl funky.dat hsd09cnf.h vacation.dat
dfl_fla_bb_mas_wb_pt.pl fx_1.mid hsd09ddl.ddl video_game.mid dfl_fla_pt.pl hdr02aud.h
drum_demo.dat hdr06pwr.h makefile drums_all.dat master.def hdr12aud.c hdr16pwr.c
hsd09dcp.ddl

pt-cpi

hcp00int.h   hcp11stk.c   hcp12app.c

pt-hl

hhl00int.h   hhl09prc.h   hhl23ccs.sdl   hhl37cdc.h   hhl01dat.h   hhl02mlp.h   hhl03cc.h
hhl04mm.h   hhl05ss.h   hhl15ssv.c   hhl19prc.c

pt-mac-dect

hhm12rms.sdl   hlm04rx.h   hhm00int.h   hlm05tx.h   hhm01dat.h   hlm06rf.h   libppbmpvone-
mix.lib   hhm07use.h   hlm09use.h   libpplmacvone-2s-mix.lib
libpplmacvone-mix.lib   hlm00int.h   libpprambmpvone-mix.lib   hlm01dat.h
hhm11dat.c   hhm12rms.c   hhm13rm.c   hhm15mbc.c   hlm19use.c   hlm16rf.c   hm12rms.c
clm09use.h   hhm18mmc.c   libpplmacvone-2s-long.lib   libpplmacvone-2s-long-ip.lib
libpplmacvone.lib

pt-mac-wdct

hhm12rms.sdl   hlm04rx.h   hhm00int.h   hlm05tx.h   hhm01dat.h   hlm06rf.h   libppbmpvone-
mix.lib   hhm07use.h   hlm09use.h   libpplmacvone-2s-mix.lib
libpplmacvone-mix.lib   hlm00int.h   libpprambmpvone-mix.lib   hlm01dat.h   hlm00int.h
hhm11dat.c   hhm12rms.c   hhm13rm.c   hhm15mbc.c   hlm16rf.c   hhm12rms.c   hm10int.c
hlm08sif.h   hlm19use.c   clm09use.h   hhm16loc.c   hhm17use.c   libpplmacvone-2s-long-
mmc.lib   libpplmacvone-2s-long.lib   huaa3548.c   huaa3658.c

pt-mmi

hmi01dat.h   hmi15bsm.bzp   hmi16bwt.c   hmi19spr.c   hmi21bsm.bzp   hmi12stm.c
hmi15bsm.c   hmi17wt.c   hmi20bsm.bzp   hmi21bsm.c   hmi13vm.c   hmi15bsm.h
hmi18bsp.bzp   hmi20bsm.c   hmi21bsm.h   hmi14vm.c   hmi16bwt.bzp   hmi18bsp.c
hmi20bsm.h   hmi23dh.c

pt-sms1

hms00int.h   hms01dat.h   hms13bsm.bzp   hms10int.c   hms11vm.c   hms12stm.c
hms13bsm.c

fwup-src

FWUP/inc: cpfl0ash.h   cswup0XDev.h   cswup0mgr.h   cswup0spidrv.h
cswimg0mgr.h   cswup0config.h   cswup0spi.h   cswup0util.h

FWUP/src:
cflash0util.c   cswimg0mgr.c   cswup0Xflash.c   cswup0init.c   cswup0spi.c   cswup0test.c
cswup0util.c
cpfl0ash.c   cswup0XDev.c   cswup0if.c   cswup0mgr.c   cswup0spidrv.c   cswup0uart.c

MD5:
md5.c   md5.h   md5global.h

SSW:
ITCM_H.sym   ITCM_L_V00000000.sym   adsmemVOneFWUPSplit.map   startup.s
ITCM_H_DCX.sym   adsmemDcxFWUPSplit.map   ssw01app.s   unlib.s

XHOST:
Vega_FWUP.exe   su_host.zip

pt-wt-hl

bhl01dat.h bhl06cm.h   bhl02mlp.h bhl23ccs.sdl bhl03cc.h   bhl22mls.sdl

pt-wt-mac-dect

bhm00int.h blm00int.h bhm01dat.h bhm12rms.sdl blm01dat.h libppwtlmacvone-2s-mix.lib
bhm02rms.h blm04rx.h   libppwtlmacvone-mix.lib bhm07use.h blm05tx.h
blm06rf.h blm09use.h bhm30sec.c

pt-wt-mac-wdct

bhm00int.h blm00int.h bhm01dat.h bhm12rms.sdl blm01dat.h libppwtlmacvone-2s-mix.lib
bhm02rms.h blm04rx.h   libppwtlmacvone-mix.lib bhm07use.h blm05tx.h
blm06rf.h blm09use.h bhm08fsh.h bhm10int.c bhm11dat.c bhm13rm.c hm14bcc.c
bhm15mbc.c bhm17use.c bhm18fsv.c bhm28fss.c blm08sif.h blm19use.c

tools

adssum ddl2c ddl2ddl.lnx pc0.exe   usbrc.exe adssum.prl ddl2c.exe
dummy0generatorDOS.exe prost   usbrc_linux bin2hex   ddl2c.lnx
dummy0generatorLNX sdl2c usbrc_sun bin2hex.exe ddl2ddl   dummy0generatorSUN
sdl2c.exe bin2hex.lnx ddl2ddl.exe gmake.exe sdl2c.lnx print_EEPROM.pl

7 List of Relevant Documents

This table lists the documents related to this delivery:

Description	Document Name	Version	Remark
[1] DECT SW Protocol Interface	d53_piV9.7d.pdf	9.7	
[2] Operating System Design and Interfaces	Dswos_v3.2.pdf	3.2	
[3] Drivers Design and Interfaces	d53_dsdd.pdf	6.3d21	
[4] User Interface Description	uid_V77d.pdf	7.7d	
[5] MMI Design Description	mmi_book.pdf	6.1	
[6] Software Design Description, Vega Family DECT Higher MAC	d53_msdd.pdf	2.3p	
[7] MLP Design Description	MLPsdd.pdf	2.1	
[8] HLP Design Description	HLPsdd.pdf	2.6d	
[9] User Manual DSP Application Programming Interface	Umda700.pdf	7.0	stored in dspapi directory
[10] Software Release Note: DSP Application Programming Interface	rnda710.pdf	7.10	stored in dspapi directory
[11] User Manual: Vega-Family ARM DSP Release V7.6	dspumvega_arm_rel80_22.pdf	2.2	stored in dspapi directory
[12] User Manual: cswitch_mode - Code Reduction Tool	m11_cswitch_mod_v1_0.pdf	1.0d	
[13] Application Note: Polyphonic Ringing on VegaLite (Flash), Vega-BlueLite (Flash) and Vega-BlueBird	Polyphonic_AppNote_V11.pdf	1.1	
[14] VegaOne Demo Adapter v3 Rework Record	VegaOne_Demo_Adapter_v3_Rework_Record.xls	1.65	
[15] VegaOne Demo Adapter v5 Rework Record	VegaOne_Demo_Adapter_v5_Rework_Record.xls	1.11	
[16] Vega demoBluePP 05942 Rework Record to support VegaOne demo adapter 05855	Vega_Demo_Base_05942_Rework_Record_To_Support_VegaOne_Demo_Adapter_05855.xls	1.6	
[17] Vega demo base 05433 rework record to support VegaOne demo adapter 05855	Vega_DemoBluePP_05433_Rework_Record_To_Support_VegaOne_Demo_Adapter_05855.xls	1.3	
[18] Data Handler API	d97_dh_api4 6.pdf	4.6d	
[19] Data Channel Application Notes	data_channel_V1.3.pdf	1.3	
[20] Audio User's Guide	950384c_Audio-Users-Guide.pdf	C	
[21] VegaOne 3.12 software release notes	VEGAONE_3.12_Release_Notes.pdf	1.0	
[22] SMS1 + Design Description	d75_sdd_sms1+_V2.1d	2.1d	

[23] DC Line Monitor	HL_DC_Line_Monitor.pdf	0.1	
[24] Software Design Description, Power Control for ECO Mode	eco_mode_sdd.pdf	0.9d12	
[25] UART Application Notes	UART_AppNote.pdf	1.1	
[26] VegaOne Build commands	ScorpionBuildCommand.txt	n.a	
[27] Compile Option Variants	Compile_Options_Variants.xls	n.a.	
[28] VegaOne ROM Code Creation	ZRH_AN0702-VegaOne-RomCode-creation.pdf	2.2	
[29] COW VegaOne SDD	COW_VegaOne_SDD	3.0	
[30] VegaOne_flows	VegaOne_flows		
[31] VegaOne_flows for FT	VegaOne_flows_FT		
[32] EEprom-map-generatot(AN)	EEprom-map-generatot(AN).pdf	1.0	
[33] ZRH-AN0402-creating-vega-romcodes	ZRH-AN0402-creating-vega-romcodes.pdf	2.3	
[34] Application note DTAM for VegaOne	VegaOne_DTAM_AppNote_V1.pdf	1.0	
[35] FT E-Eco HLD	FT_Idle_flow.pdf	0.1	
[36] OS Trace	OSTraceRT0.2.pdf	0.2	
[37] Open Codec Interface	OpenCodecInterface.pdf	1.0	
[38] System application note for PSM impact on BMP time base unit at DCX79	PSM_AN.pdf	0.2	
[39] AFC in Scorpion Design and Interfaces	AFCDesignAndIF.pdf	1.0d	
[40] Migration from VegaOne to DCX	VegaOne2DCX(AN).pdf	0.2	
[41] SUOTA Software Architecture	SUOTA Software Architecture.pdf	0.7	SUOTA Software Architecture
[42] Scorpion Polyphonic Ringer on Base	Scorpion_polyphonic_on_base.doc	1.0	
[43] VegaOne Handset AT Commands	Vega_One_AT_Commands 0.7.x.pdf	0.7x	
[44] Software Requirements Specification Document for DCX79 chipset based system	DCX79 SW requirement document ver 1.doc	1.0	
[45] VegaOne Base local HS HW modifications	ANxxx VegaBS HKG Rework for DCX79_2.pdf	n.a.	
[46] Hydra mmi state machine	Hydra_State_Machine.pdf	n.a.	
[47] DRPforWDCT	DRPforWDCT.doc		
[48] DRPC Software change validation	DRPC_SoftwareChangeValidtion.pdf		
[49] Hydra HS	Hydra HS.pdf	n.a.	

8 Compiler Options

The following main compiler switches are used to configure the software. These are gmake command line options. The central file macrodef.mak holds all compiler switches used in this software package. Not all combinations of the below compiler switches have been tested.

Name	Value when generating the flat directories	Value when compiling for FT	Value when compiling for PT	Description
AEC	1 or 0 Default is 0	n.a.	n.a.	Enables Acoustic Echo Cancelling for Narrowband.
AFC (COPTS)	n.a.	n.a.	1 or undefined. Default is undefined	Enables the DCX Automatic Frequency Correction
CAT_IQ	1 or 0 Default is 0	1 or 0 Default is 0	1 or 0 Default is 0	Enables CATiq functionality. This switch will implicitly enable DOUBLE_SLOT, LONG_SLOT.
CF_ON_IP	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enable CF Channel.
CLIP5INST	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	CLIPdelivery mechanism to deliver CLIP to all subscribed handsets if more handsets are subscribed than the number of available higher layer instances (parallel links). Note: this feature is not needed if CLMS_CLIP is used.
CLMS_CLIP	n.a.	1 or 0 Default is 1	1 or 0 Default is 1	Allows sending of CLIP information to all subscribed handsets, even if less instances are available in the FT than subscribed handsets. The CLIP information is sent via broadcast messages (long page messages) to all handsets without the need of an established link.
COMIF	n.a.	UART	UART	To enable the UART Port as a terminal I/O. (Not possible to use this option when compiling for VSP). A special HW modification may be needed, see document [30]
DATA_CALL	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the DATA call functionality. DH_IWU is implicitly enabled for all variants of the builds. For Narrow band builds (WB=0) DH_WB is disabled. For CATiq builds, DH_WB and LU10 and IP_CHAN are enabled.
DCC	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Debug Communication Channel. Option to work with terminal via the JTAG. By adding DCC=1 to compilation line the terminal will be open via DCC and not

				IIC.
DECT_SECURITY (COPTS)	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the DECT Security feature
DEV	8001, 8002, 8003, 8009, 8010, 8011 8019, xx008, xx00B, xxEF00F, VegaOne Default is 8009 DCX Default is xxEF00F	8001, 8002, 8003, 8009, 8010, 8011 8019, xx008, xx00B, xxEF00F, VegaOne Default is 8009 DCX Default is xxEF00F	8001, 8002, 8003, 8009, 8010, 8011 8019, xx008, xx00B, xxEF00F, VegaOne Default is 8009 DCX Default is xxEF00F	VegaOne or DCX device.
DH_IWU	n.a.	1 or 0 Default is 1	1 or 0 Default is 1	Enables the Data Handler over IWU channel. DATA_CALL=1 will implicitly enable this switch.
DRPC	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the Dynamic Receive Power Control.
DTPC	n.a.	1 or 0 Default is 1	1 or 0 Default is 1	Enables the Dynamic Transmit Power Control.
DTAM	1 or 0 Default is 1	1 or 0 Default is 1	1 or 0 Default is 1	Enables the DTAM feature.
DH_SMS	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	This compile switch should be used only when there is a need to have the interop with Data Handler which was a part of previous releases. For example, if Scoprion 3.7/8 Base wants to have DH_IWU data transfer with Scorpion 3.6 HS, then the Base SW needs to be compiled with DH_SMS=1 switch. Incase both HS and Base use Scorpion 3.7 or 3.8, this switch is NOT required.
DH_WB	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the Wideband DataHandler over the B-field instead of IWU channel.
DOUBLE_SLOT	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the capability to establish a double slot connection (needed for transporting WB audio).
EBI	1 or 0 Default is 0	1 or 0 Default is 0	1 or 0 Default is 0	Enables the DCX External BUS Interface Driver
EEPONFLASH	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the EEPROM Removal feature
FDHF	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables Full Duplex Hands Free feature.

FNR	1 or 0 Default is 0	n.a.	1 or 0 Default is 0	Enables the FNR feature, for application that to not require to use the FNR together with the AEC
FNR_EXT	1 or 0 Default is 0	n.a.	n.a.	Enables the FNR feature, for application that require to use the FNR together with the AEC
FW	VegaOne: d or c Default is d DCX: dcx_c	VegaOne: d or c Default is d DCX: dcx_c	VegaOne: d or c Default is d DCX: dcx_c	With VegaOne: Use firmware (ROM) D00 or C00. With DCX: Use firmware (ROM) dcx_c
FWUP	1 or 0 Default is 0	1 or 0 Default is 0	1 or 0 Default is 0	Enables the Software Update feature. Please. In case of SW Update via UART, COMIF=UART should be added as well
ICELP	1 or 0 Default is 0	1 or 0 Default is 0	n.a.	To use the ICELP codec for DTAM.
IDLE_FLOW	n.a.	1 or 0 Default is 1	n.a.	To enable E-Eco on FT
IN_CHAN	1 or 0 Default is 1	1 or 0 Default is 1	1 or 0 Default is 1	Enable unprotected data communication in B-field in non- speech connections (message call, service call, etc...). The default value stated is only for DECT builds.
INCLUDE_BMP	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	If set, uses BMP library from FLASH and not from ROM.
IOM_LINES	n.a.	0 to 3 Default is 0	n.a.	Allows usage of an IOM line for voice data from external hardware. The total number IOM and PSTN lines cannot be more than 3. If USB is used the max number is then 2.
IOM16LIN	0 to 3 Default is 0	n.a.	n.a.	Prepare the flat directories to compile with IOM_LINES.
IP_CHAN				Enable protected data communication in B-field in non-speech connections (message call, service call, etc...).
LCD	1 or 0 Default is 0	1 or 0 Default is 0	1 or 0 Default is 0	Enables the DCX internal LCD Driver
LINE_MONITOR	0 or 1 Default is 0	0 or 1 Default is 0	n.a.	Enables DC Line Monitor Feature.
LPM	n.a.	0 or 1 Default is 0	n.a.	Enables the Line Powered Mode feature
LOC_RETRY	n.a.	n.a.	1 or 0 Default is 0	Automatic Location Registration retry, if it fails (PT only).
MAS	0 or 1 Default is 1	n.a.	n.a.	Enables the Multiple Algorithm Synthesis. (Full media player for MIDI files).
MAS_SP	0 or 1 Default is 0	n.a.	n.a.	MAS with Score Player. Also used for Polyphony ringer on PP
MASK	n.a.	0 or 1 Default is 0 for 80x9 otherwise 1	0 or 1 Default is 0 for 80x9 otherwise 1	MASK=1 means compile for a ROM Mask. MASK=0 means compile for a development device.

MIX_SLOT	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the mixing mode.
MMC	1 or 0 Default is 0	1 or 0 Default is 0	1 or 0 Default is 0	Enable Master MBC mode – only for CATiq DC builds
MULTY_PARTY	n.a.	0 or 1 Default is 0	n.a.	To add more handsets in a conference (on line 1). This currently works only in NarrowBand.
NB726	1, 2, 3 or 4 Default is 0	n.a.	n.a.	Sets the number of Narrowband ADPCM instances.
NEMO	1 or 0 Default is 0	1 or 0 Default is 0	1 or 0 Default is 0	Enable Zero Emission mode on FT or PT (both should be enabled)
NO_UART_FOR_IOM	n.a.	0 or 1 Default is 0	0 or 1 Default is 0	Used together with IOM_LINES≠0 to specify that the UART is not used as a communication port for IOM.
NO_USE_DAFLVAL	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	DAFLAGS set to 0x0 to disable verification to the DSP/API code.
NOMCELL	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	If set the handset is not capable of operating in a multi-cell environment. A multicell environment is one where a single subscription allows the use of more than one RFP, so that the handset can make/receive calls and handover from one RFP to another, (typically a PABX). A single cell system is one where a single subscription only allows the use of one RFP. When set, the SW is not GAP compatible any more.
PATCH_EEPROM	n.a.	1 or 0 Default is 0	1 or 0 Default is 1	configures the code to search for patches in the EEPROM.
PATCH_FLASH	n.a.	1 or 0 Default is 1	1 or 0 Default is 0	PATCH mechanism searches the PATCH in the flash.
POLYPHONIC	1 or 0 Default is 0	1 or 0 Default is 1	0 or 1 Default is 0	Enable Polyphonic ringer on PT. To enable this feature "MAS_SP=1" or "MAS=1" must be added to the flat generation
POLYPHONIC_ON_BASE	0 or 1 Default is 0	0 or 1 Default is 0	n.a.	Enable Polyphonic ringer on FT
PSTN	1 or 0 Default is 1	n.a.	n.a.	Prepare the flat directories to compile with PSTN_LINES.
PSTN_LINES	n.a.	1 or 0 Default is 1	n.a.	Defines number of PSTN lines in the application. The total number IOM and PSTN lines cannot be more than 3. If USB is used the max number is then 2.
RF_ON_OFF	n.a.	n.a.	1 or 0 Default is 1	Disables the RF ON/OFF Feature
SHORT_SETUP	n.a.	1 or 0 Default is 1	n.a.	Defines a short slot scan on FT side. Scan only the A-field and not the entire slot. Contribute to power consumption reduction.
SMS	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the SMS feature (needed with SMS1PLUS switch). Only SMS Protocol 1 is supported (SMS12 is not to be used any more).
SMS1PLUS	n.a.	1 or 0 Default is 1	1 or 0 Default is 1	Enables the SMS1PLUS feature (Long SMS).

SMSLONGFT	n.a.	1 or 0 Default is 1	n.a.	Support of long SMS in FT.
SMSLONGPT	n.a.	n.a	1 or 0 Default is 1	Support of long SMS in PT.
SP_ON_BASE	1 or 0 Default is 0	1 or 0 Default is 0	n.a.	Enables Speakerphone on the base feature.
SUPPORT_12_HS	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Allows 12 HS to be registered to the base. NOTE: This feature requires an EEPROM of at least 3KB
TIME	n.a.	1 or 0 Default is 1	1 or 0 Default is 1	If the FT provides a real-time-clock, the time and date (time- stamp) can be transferred to all subscribed handsets during location registration and during a call setup (external, internal or service call, PT or FT initiated) to update the clock in the PT. If this switch is set, location registration is always done after going in-range, not only after reset of the PT or during subscription. See User Manual Protocol Interface (section 8.2.2.2 RTC Timestamp).
TOGS	1, 2 or 3 Default is 3	n.a.	n.a.	Sets the number of tone generators assigned (except two that are dedicated to the line interface).
TTS	0 or 1 Default is 0	0 or 1 Default is 0	n.a.	Enables the TTS Feature
USB	0, 1 or 2 Default is 0	0, 1 or 2 Default is 0	1 or 0 Default is 0	Enables USB feature. When Enabled, one or two audio classes are supported.
USB_DONGLE	n.a.	n.a.	1 or 0 Default is 0	Enables USB dongle.
USCONF	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables direct call access of a handset to an existing external call. This is not supported by default.
VBR	1 or 0 Default is 1	1 or 0 Default is 1	n.a.	To use the VBR codec for DTAM.
VBR_4_BITRATE	1 or 0 Default is 0	1 or 0 Default is 0	n.a	To use VBR with only 4KB/s bitrate.
VSP	1 or 0 Default is 0	1 or 0 Default is 0	1 or 0 Default is 0	Enables the VSP (Vega Software Platform) feature set.
WB	n.a.	1 or 0 Default is 0	1 or 0 Default is 0	Enables the Wideband audio feature.
WBE_ON_PT	n.a.	n.a.	1 or 0 Default is 0	Enables WBE.
WBE_PT	1 or 0 Default is 0	n.a.	n.a.	To prepare the flat directories for WBE.
WB722	1, 2, 3 Default is 0 With DCX 4, 5 and 6 are also possible	n.a.	n.a.	Set the number of Wideband G722 codecs.
WB722HW	1 or 0 Default is 1	n.a.	n.a.	Enables the Hardware g.722 codec feature (for DCX)

WB726	1, 2 or 3 Default is 0	n.a.	n.a.	Set the number of Wideband G726 codecs.
WBAEC	1 or 0 Default is 0	n.a.	n.a.	Enables the Acoustic Echo Canceller for Wideband.
WBE_FT	1 or 0 Default is 0	1 or 0 Default is 0	n.a.	Enables WBE for the SP_ON_BASE.
WT	1 or 0 Default is 0	n.a.	1 or 0 Default is 0	Walky-Talky (direct PT to PT) mode. This option is for PT only.

9 Appendix

9.1 Synergy CM Baseline (for DSPG internal use only)

The following database baselines should be used to restore the source code for Scorpion_3.12.1:

D53: Scorpion_3.12.1_20110824
D51: 7.21
D48: Scorpion_3.12.1_20110824
D46: Scorpion_3.12.1_20110824
phoenix: Scorpion_3.12_20100323

DECT Stack library version: VER_008

To create the customer package, the following shell script should be called:
Setvone
Setenv DCX_CHIP DCX78
Setenv DEV 8001
setdcx –k (-k is to keep VegaOne libraries)
unsetenv DEV
Setenv DCX_CHIP DCX79
setdcx –k
unsetenv DCX_CHIP