Base band application (MT6218B based platform)

WCP/MS/SA1

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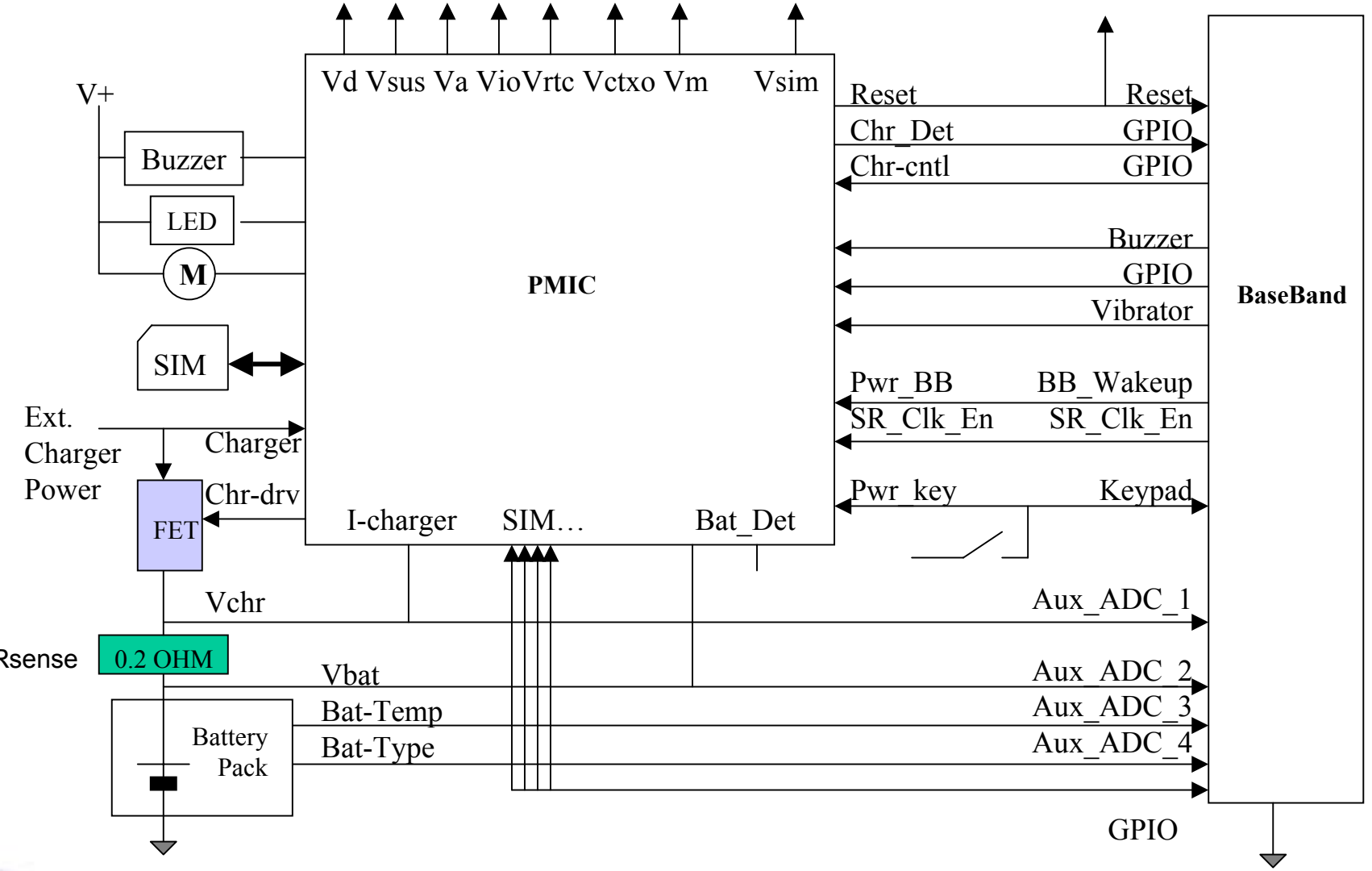
Outline

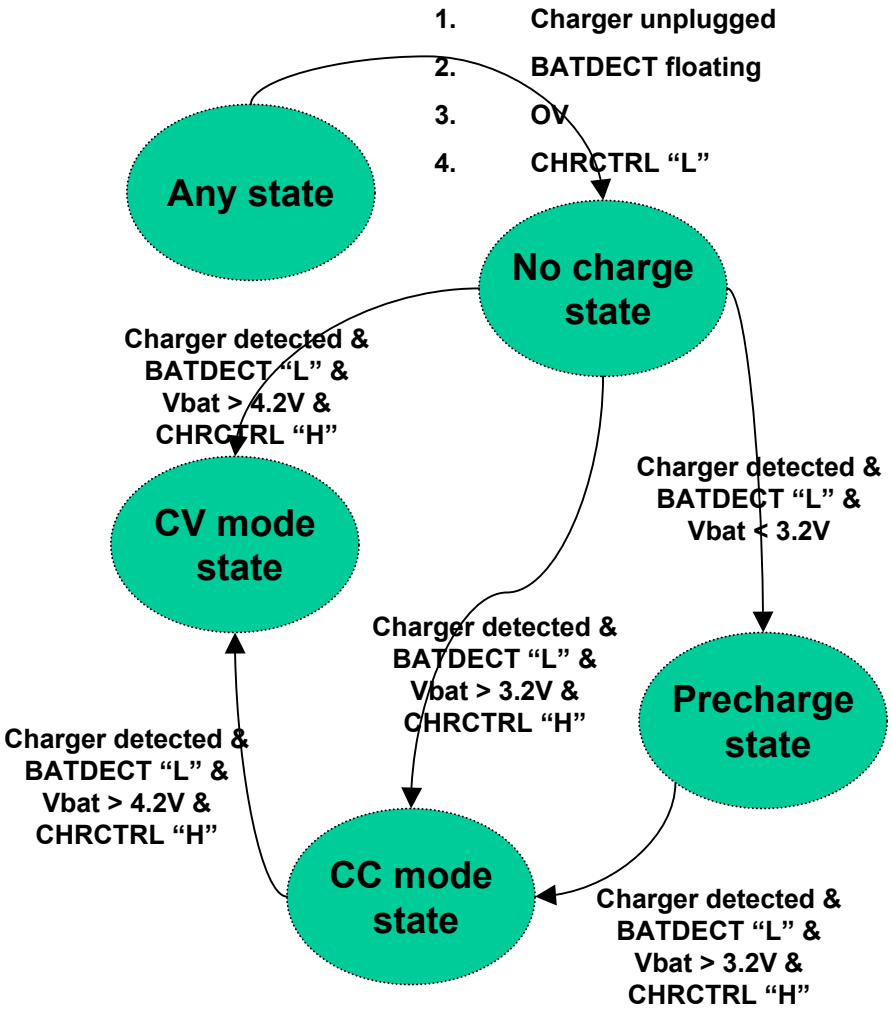
- MT6305 overview
- MT6218B overview
- Application circuit discussion
- Connect to Driver
- Base band test items overview
- Base band related tools overview
- Communication models with customer
- END

MT6305 overview - Block diagram



Charger state diagram

H.W.



MT6305 overview - Function (1)

- Regulator
  - Va, Vtcxo (2.8V, Low noise and high PSRR design, can be turned off in sleep mode by “VASEL” and “SRCLKEN”,)
  - Vm (1.8/2.8V “Vmsel”),
  - Vcore (1.8V)
  - Vio (2.8V)
  - Vsim (3V/1.8V “SIMSEL”)
  - Vrtc (1.5V) (1mA)
- Reset control
  - Reset delay (2msec/nF * Crstcap)
- LDOs On/Off control
  - Charger in > Vbat + 0.25V
  - BBwake up “H”
  - OT/UVLO (3.0,3.2)
  - DDLO (2.5,2.6)

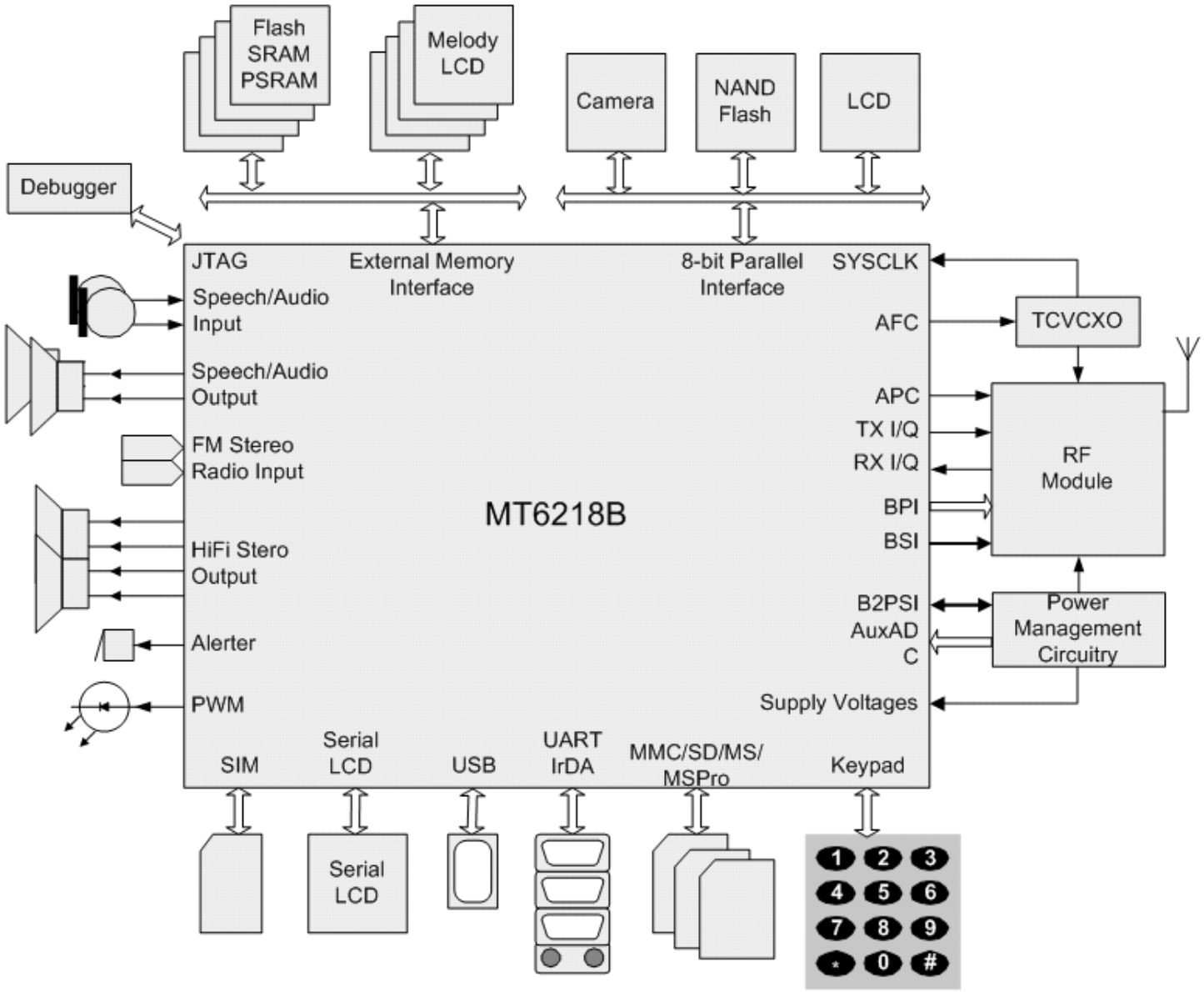
MT6305 overview - Function (2)

- Charger function
  - BATUSE (L ➔ Li-ion, H ➔ Ni-Mh)
  - BATDET (L ➔ charger enabled) (5usec)
    - ✓ PMIC auto disable charging function if illegal battery is found or battery removal
  - Precharge function (Li-ion/Ni-MH)
    - ✓ Precharge current = 10mV/Rsense
  - CC mode charging (Li-ion/Ni-MH)
    - ✓ CC mode charging current = 160mV/Rsense
  - CV mode charging (only for Li-ion)
    - ✓ Vbat is kept to 4.2V
  - OV function (5usec)
    - ✓ 4.3 V (Li-ion), 5.1V (Ni-MH)
- Thermal shutdown (disable all regulator, exclude RTC)
- Buzzer, LED, Alerter driver (low Von voltage)
- 1.8V/3V SIM level shifter

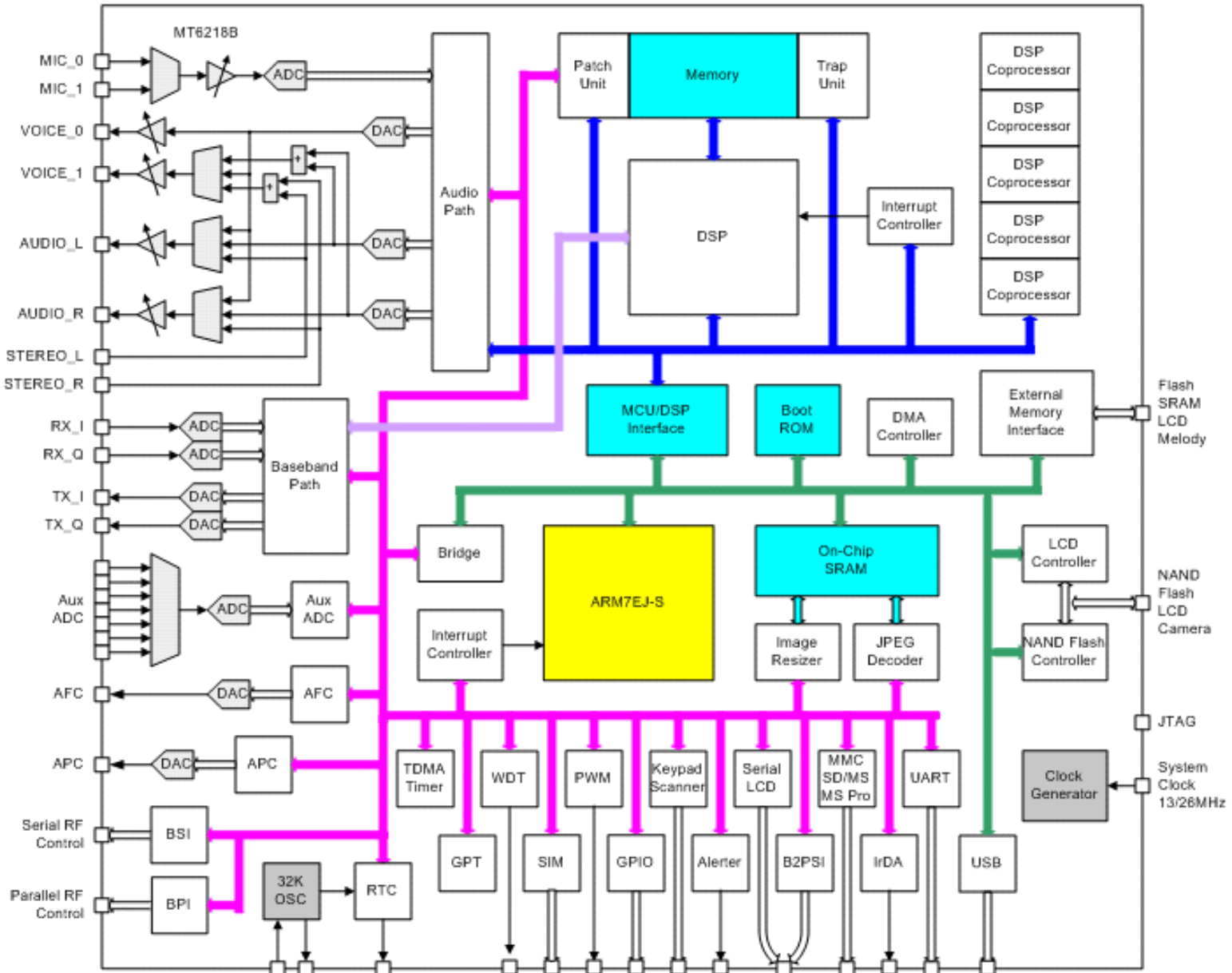
MT6218B overview

- Application overview
- Main Features
- Interrupt controller
- Memory management
- Boot up mechanism
- External memory interface (EMI)
- Auxiliary ADC
- Pulse-Width Modulation outputs (PWM)
- Real time clock (RTC)
- Keypad
- General Purpose Inputs/Outputs (GPIOs)
- Audio block

MT6218B Overview – Typical Application



MT6218B Overview – Block Diagram



MT6218B Overview – Main Features(1/3)

- MCU system and external memory interface
  - ARM7EJ-S 32-bit RISC processor (26/52MHz)
  - Java hardware acceleration for Java-based games and other applets
  - 2M bits zero-wait-state on-chip SRAM
  - On-chip boot ROM for Factory Flash download
  - Watchdog timer for system crash recovery
- External memory interface
  - Support 8/16-bit memory components with size up to 64MB each
  - Support Flash and SRAM with page (8/16/32/64 bytes) mode or burst mode
  - Support Pseudo SRAM
  - Standard parallel LCD interface, built-in hardware acceleration function for color LCD panels
  - Flexible I/O voltage of 1.8V ~ 3V for memory interface
- Multimedia subsystem
  - Dedicated 8-bit parallel interface, support up to 3 external devices(LCM, NAND, Camera)
  - High speed hardware JPEG decoder, image resizer
  - Support LCD panel maximum resolution up to 800X600 at 16bpp
  - Interface for NAND Flash, USB 1.1 device, and MMC/SD/MS/MS pro

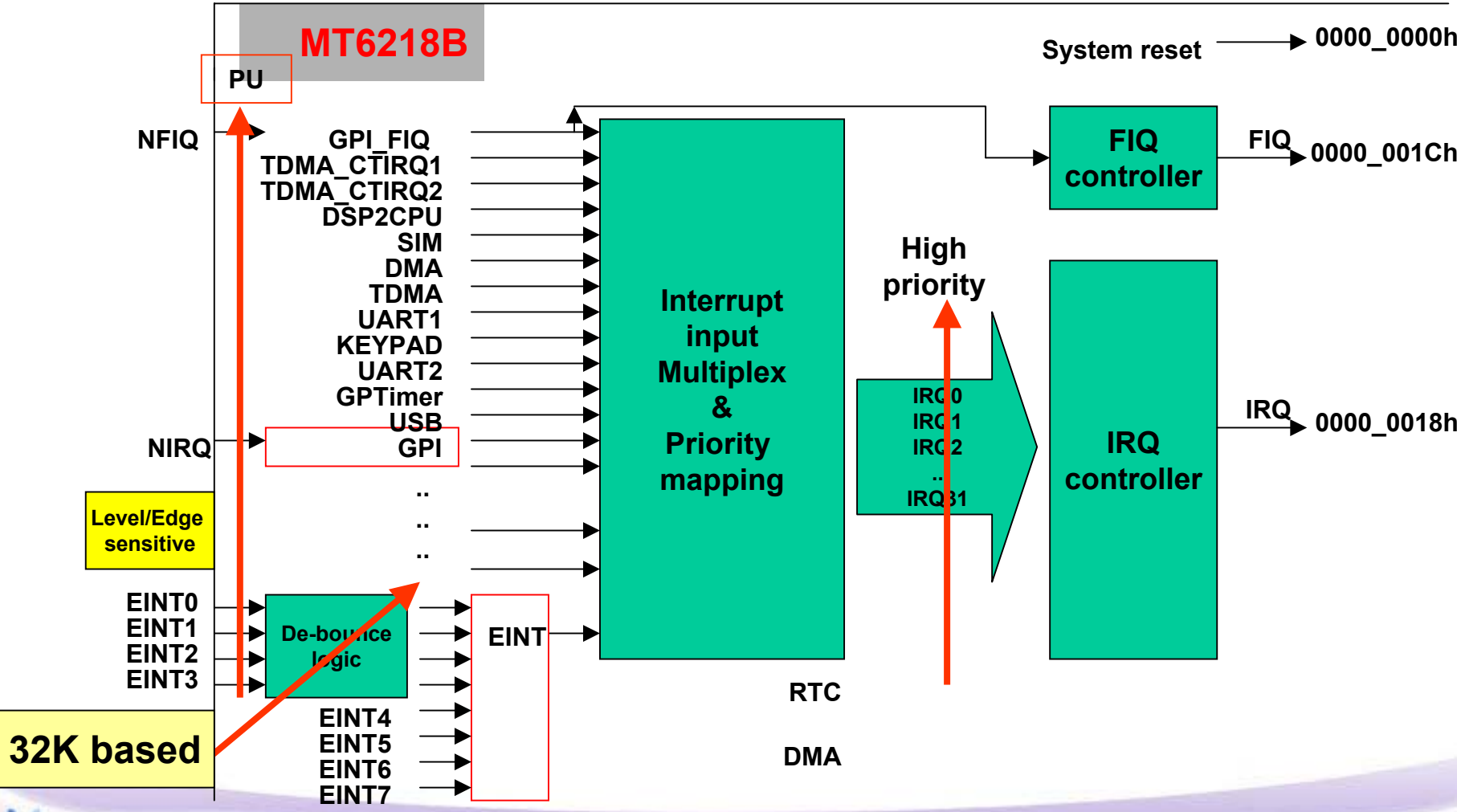
MT6218B Overview – Main Features(2/3)

- Audio and Modem codec
  - Wavetable synthesis with up to 64 tones
  - Two programmable acoustic compensation filters (Uplink, downlink)
  - AMR/EFR/FR/HR speech coding
  - Dial tone generation, voice memo, noise reduction, and echo suppression
  - Support GPRS class 12
- User interfaces
  - 6-row x 7-column keypad scan
  - Support three UARTs with speed up to 921600 bps
  - IrDA modulator/demodulator, Real time clock operation
  - Serial LCD interface with 7 bytes TX FIFO
  - PWM for backlight and alerter
  - Six external level sensitive interrupts with de-bounce logic (FIQ, IRQ don't)
- Audio interface
  - Two microphone inputs sharing one programmable low noise amplifier
  - Two speech outputs with dedicate programmable power amplifier
  - Half-duplex hands-free operation

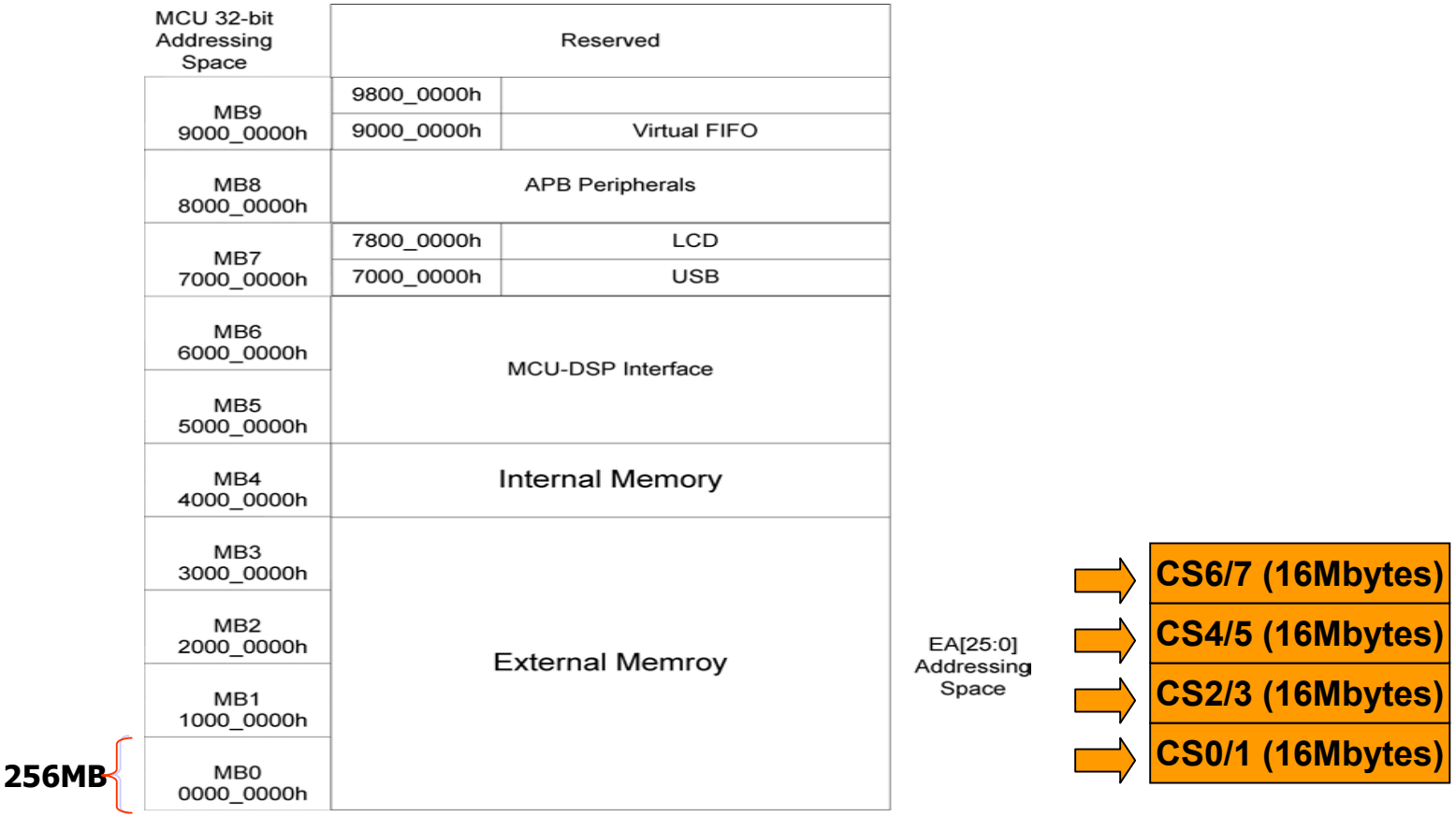
MT6218B Overview – Main Features(3/3)

- Radio interface and baseband front end
  - 10 bit DAC for uplink I/Q signals, and 14 bit ADC for downlink I/Q signals
  - 10 bit DAC for APC
  - 13 bit DAC for for AFC
  - Two 3-wire control serial interface channels (BSI)
  - 10-bit parallel interface with programmable driving strength (BPI)
  - Multi-band support
- Power management
  - Power down mode for analog and digital circuits independently
  - 32KHz slow clocking at standby state
  - 7 channel 10-bit ADC for charger and battery monitoring
- Test and debug
  - Digital and analog loop back modes for both audio and base band front-end
  - DAI port complying with GSM Rec.11.10
  - JTAG port for debugging embedded MCU

MT6218B Overview – Interrupt controller



MT6218B Overview - Memory management



MT6218B overview - Boot up mechanism (1/2)

- EMI Re-mapping Mechanism

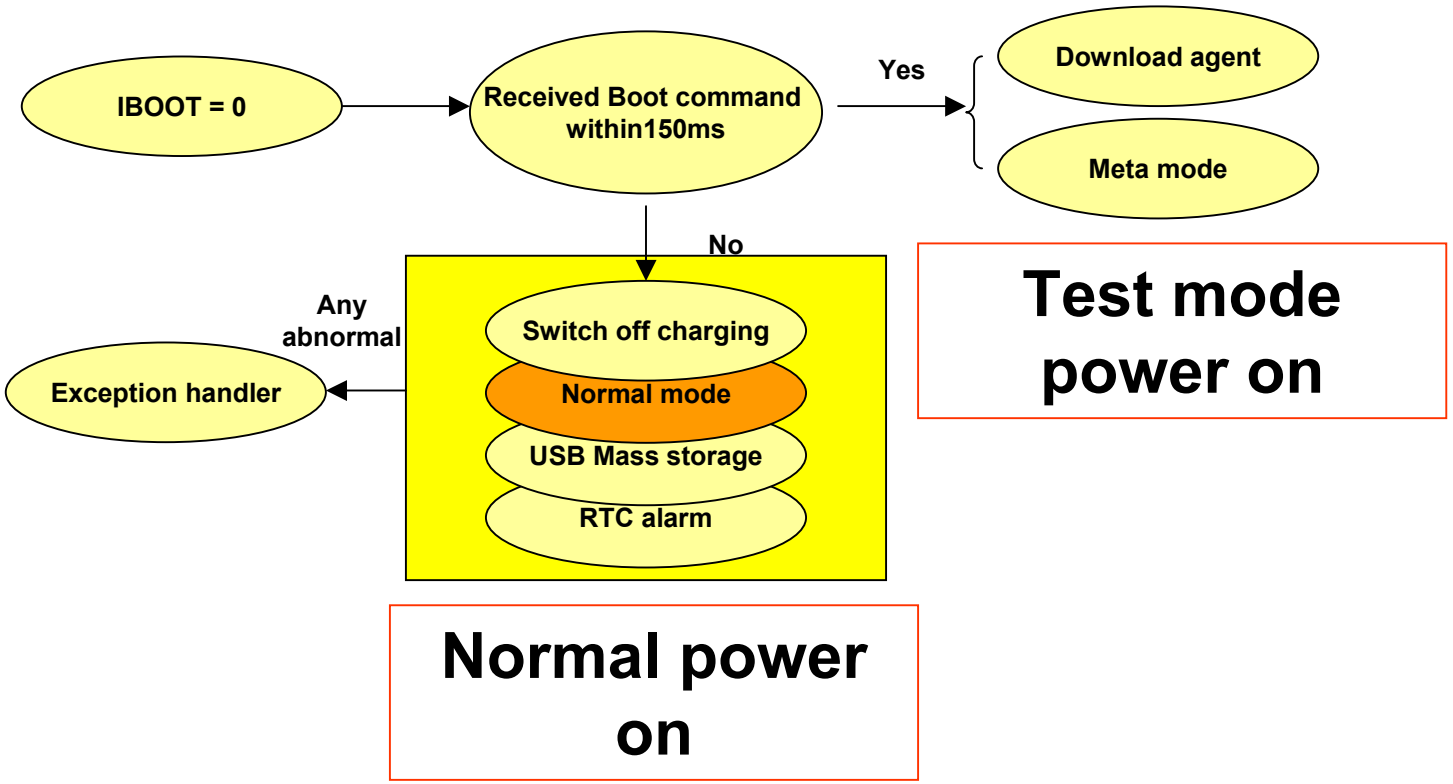
RM[1:0]	Address 0000_0000h (MB0)	Address 1000_0000h (MB0)
00	Boot Code	Bank1 (SRAM)
01	Bank1 (SRAM)	Bank0 (Flash)
10	Bank0 (Flash)	Bank1 (SRAM)
11	Bank1 (SRAM)	Bank0 (Flash)

  - **Boot up scheme:**

1. **Start up from Boot Code for factory programming.**
2. **Start up from external Flash or ROM device for normal operation**

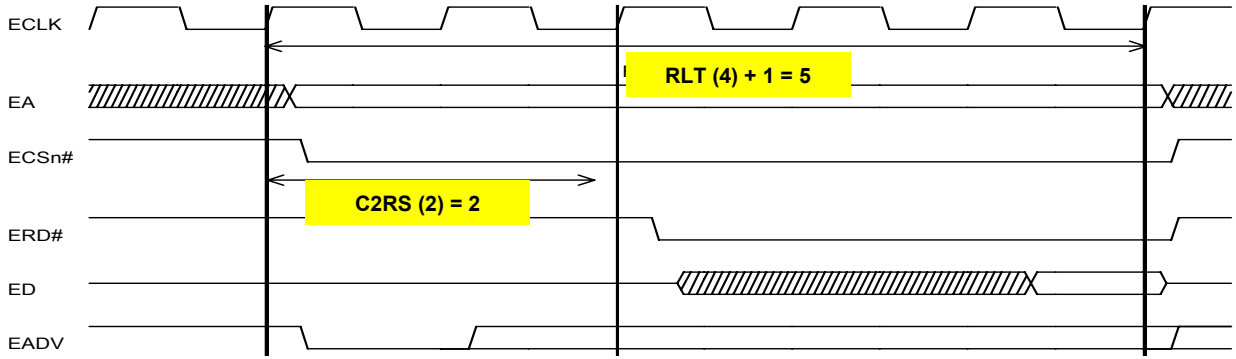
MT6218B overview - Boot up mechanism (2/2)

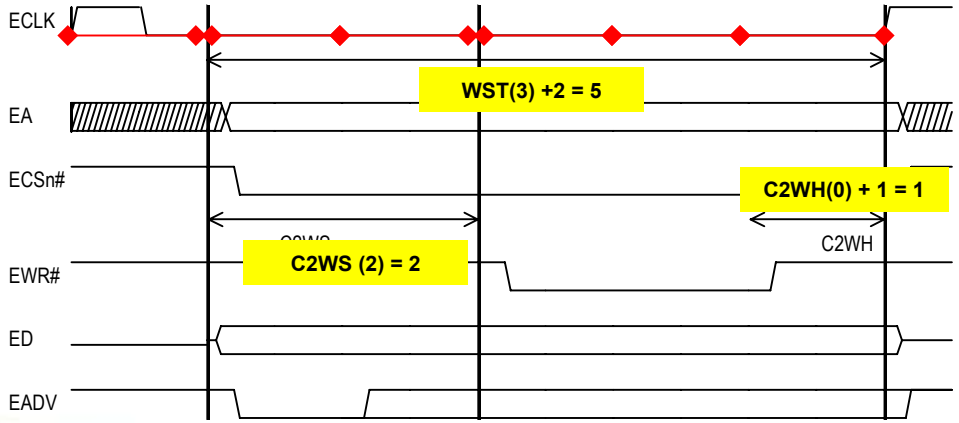
- SW State



MT6218B overview - EMI

- Read cycle - C2RS, RLT setting
- Write cycle – C2WS, WST, C2WH setting





EMI

- Flash (1)
- Flash (2)
- SRAM
- NAND flash
- LCM
- Melody
- Camera
- Others …

MT6218B overview - Auxiliary ADC

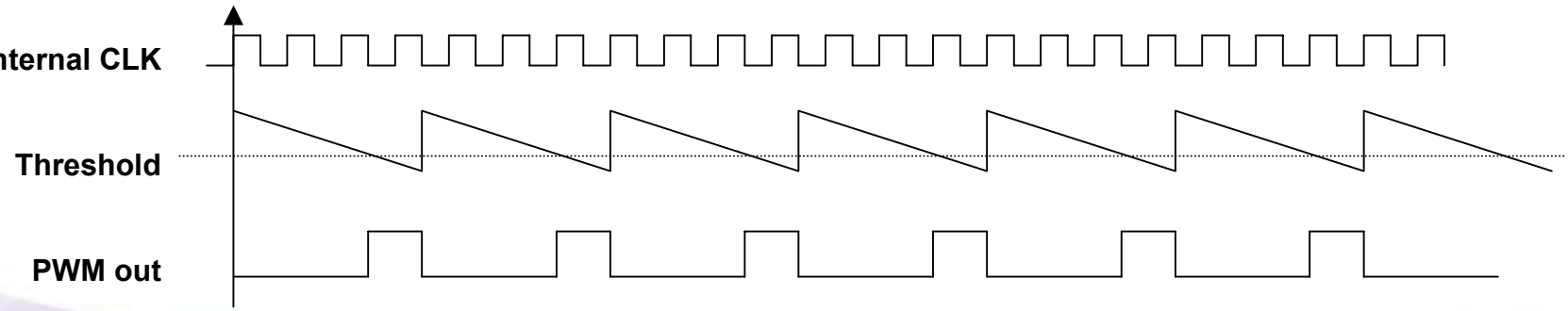
- Auxiliary ADC
  - 7 input channel
    - ✓ 10-bit resolution
  - 2 operation mode
    - ✓ immediate mode
    - ✓ timer-triggered mode (*)
      - TDMA_AUXEV0 : channel 0 only
        - » **Vbat is measured during PA turned on period**
      - TDMA_AUXEV1 : channel 0,1,2,3,4,5,6 **(VBAT, ISENSE)**
        - » **All ADC channels can be selected to measure during PA turned off period**
  - Auto or single mode
  - 8 output data register
    - ✓ DAT0,1,2,3,4,5,6 for CH0,1,2,3,4,5,6
    - ✓ DATA7 for CH0, TDMA_AUXEV0

MT6218B overview - PWM

- PWM
  - PWM1/PWM2
  - CLK can be 32K or 13M
  - Internal CLK = CLK or CLK/2 or CLK/4 or CLK/8
  - Freq. = Internal CLK/(PWM_COUNT + 1)
  - Duty = PWM_THRES/(PWM_COUNT + 1)

PWM_THRES < PWM_COUNT

- Alerter
  - CLK source is 13MHz only

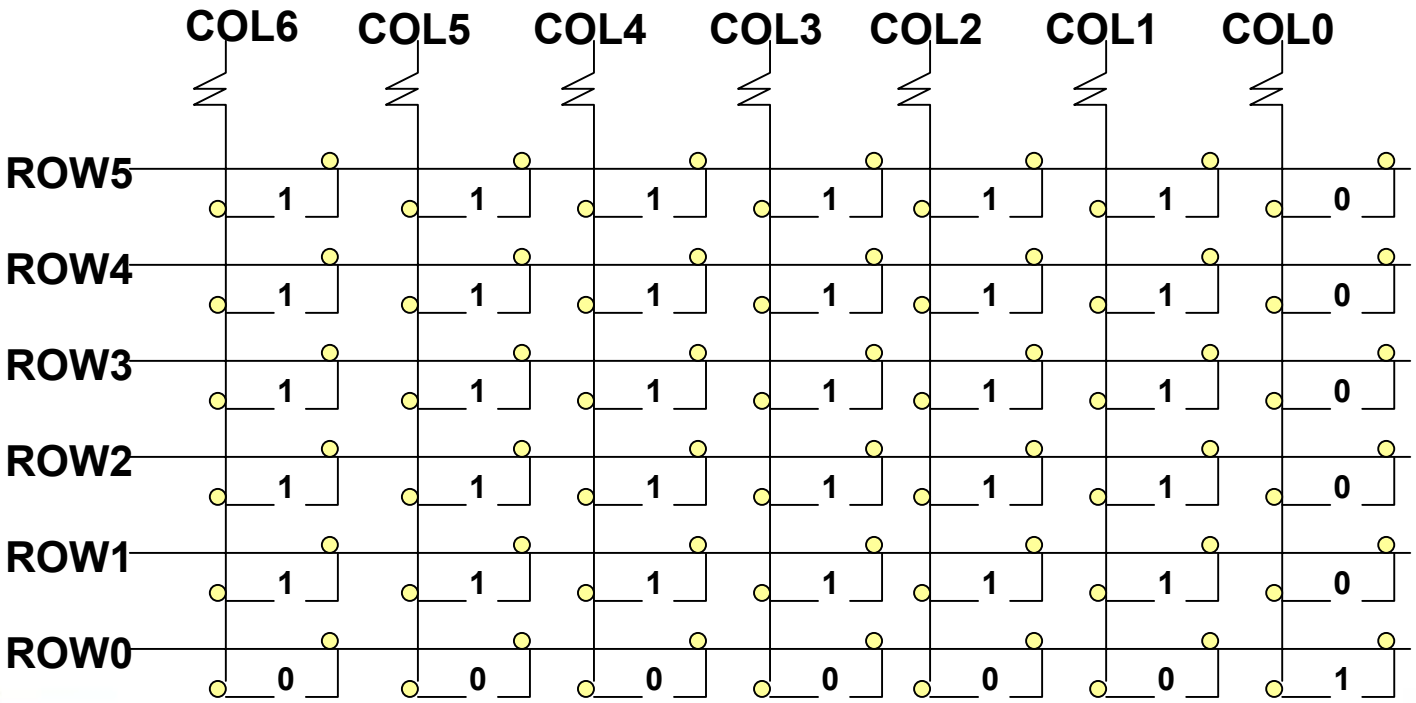


MT6218B overview - RTC

- RTC
  - Interrupt
    - ✓ Tick condition met
      - A=(SEC,MIN,HOU,DAY,WEEK,MONTH,YEAR), A/2, A/4, A/8
    - ✓ Alarm condition met
      - A
  - First power on
    - ✓ RTC_PWRKEY1 A357h, RTC_PWRKEY2 67D2h
    - ✓ 0~2048ms programmable power on debounce time
  - Baseband power up
    - ✓ BBPU : BBWKEUP
  - Write_EN (power off protection)
    - ✓ 0 : rtc write interface will be disabled until next power on.

MT6218B overview - KEYPAD

- Keypad
  - 7 columns (Input) x 6 rows (Output)
  - Detect one or two key-pressed simultaneously



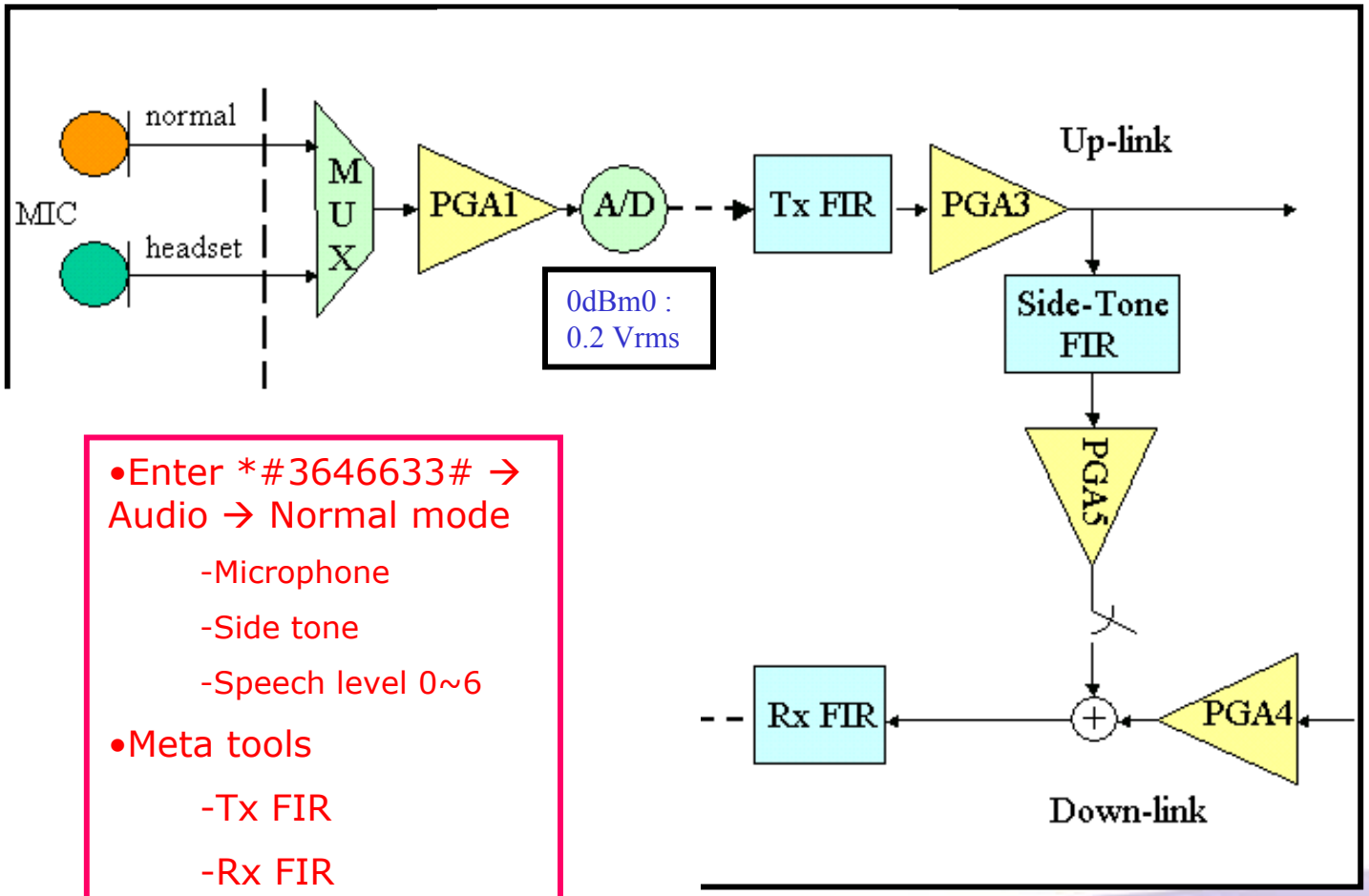
MT6218B overview - GPIOs

- GPIOs
  - Mode control (2bits)
    - ✓ GPIO,F1,F2,F3
    - ✓ Default : GPI
  - Direction
  - Pull-up/Pull down
  - Output Data

CHICAGO GPIO setting (Please set the initial value as yellow)			Date : 2003/05/08 by Danny Wang		
0	1	2	3	Net Name	Description
GPIO0	DAICLK	LPT_CK	TDMA_CK	DAICLK	Reserved
GPIO1	DAIPCMOUT	LPT_D2	TDMA_D1	GPIO1_LM4890OFF/DAITX	Audio amplifiter enable/disable
GPIO2	DAIPCMIN	LPT_D1	TDMA_D0	DAIRX	Reserved
GPIO3	DAIRST	LPT_D0	TDMA_FS	DAIRST	Reserved
GPIO4	BPI_BUS4			TXEN	RF
GPIO5	BPI_BUS5			BPI5	RF
GPIO6	BPI_BUS6	BFE_PRB0		BANDSW	RF
GPIO7	BPI_BUS7	BSI_CS1		BPI7	RF
GPIO8	LCD_DATA			LCDBL_EN	Enable(H)/Disable LCD backlight power supply
GPIO9	LCD_A0			GPIO9_RLED	Enable(H)/Disable Yellow LED
GPIO10	LCD_CLK			GPIO10_GLED	Enable(H)/Disable Green LED
GPIO11	/LCD_CS0			GPIO11_BLED	Enable(H)/Disable Blue LED
GPIO12	/LCD_CS1			GPIO12_CHRCTRL	Enable(H)/Disable PMIC charger block
GPIO13	13MHZ			MELODY_CLK	Melody IC clock input
GPIO14				N.C.	Reserved
GPIO15				GPIO15_VIBEN	Enable(H)/Disable Vibrator driver enable
GPIO16	PWM			BL_PWM	Keypad back light brightness control
GPIO17	/UCTS2	/UDSR1		UCTS2	Reserved
GPIO18	/URTS2	/UDTR1		URTS2	Reserved
GPIO19	URXD2			URXD2	High brightness White LED enable/disable
GPIO20	UTXD2			UTXD2	Low brightness White LED enable/disable
GPIO21	UREF_CLK	IRQ		UREF_CLK	UART reference clock input
GPO0	XLCDE	EA22		A22	Address input for 64Mbits flash
GPO1	SRCLKENAN	PWM2		LCM_BL_PWM	LCD module backlight brightness control
GPO2	SRCLKENA			VCXO_EN	Enable(H)/Disable Vtcxo regulator
GPO	ALERTER			LED_PWM	3 color (YGB) LED brightness control
Interrupt setting					
EINT0				EINT0_EARPHONE	Headset plug in/out detection
EINT1				EINT1_CHRDET	Charger plug in/out detection
EINT2	FIQ			EINT2_MELODY	Melody IC data request
ADC setting					
AUXADIN0				ADC0_I-	Sense charge current
AUXADIN1				ADC1_TBAT	Sense battery temperature
AUXADIN2				ADC2_MIC	Sense microphone send/off key
AUXADIN3				ADC3_I+	Sense charge current
AUXADIN4				ADC_VCHG	Sense illigal charger plugged in
Audio setting					
AU_OUT0_P	normal mode			SPKP0	
AU_OUT0_N	normal mode			SPKN0	
AU_OUT1_P	headset mode/louder spekaer mode/ melody mode			SPKP1	
AU_OUT1_N				N.C.	
AU_VIN0_P	normal mode			MICP0	
AU_VIN0_N	normal mode			MICN0	
AU_VIN1_P	headset mode			MICP1	
AU_VIN1_N				N.C.	

MT6218B overview – Audio block (1/4)

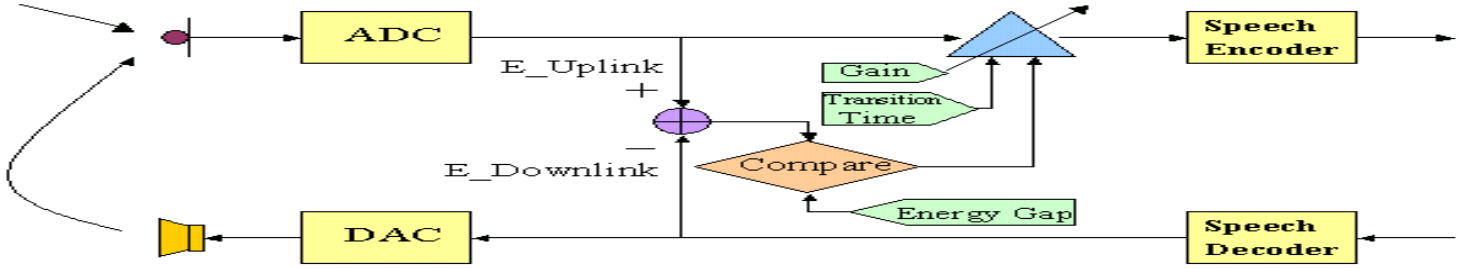
- DSP - Speech



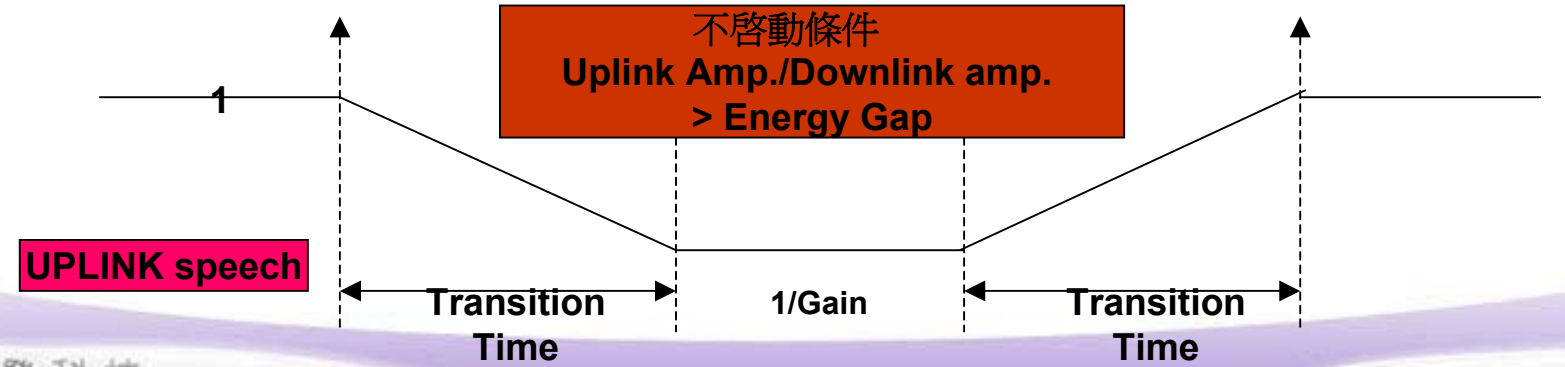
- Enter *#3646633# → Audio → Normal mode
  - -Microphone
  - -Side tone
  - -Speech level 0~6
- Meta tools
  - -Tx FIR
  - -Rx FIR

MT6218B overview – Audio block (2/4)

DSP – Echo suppressor



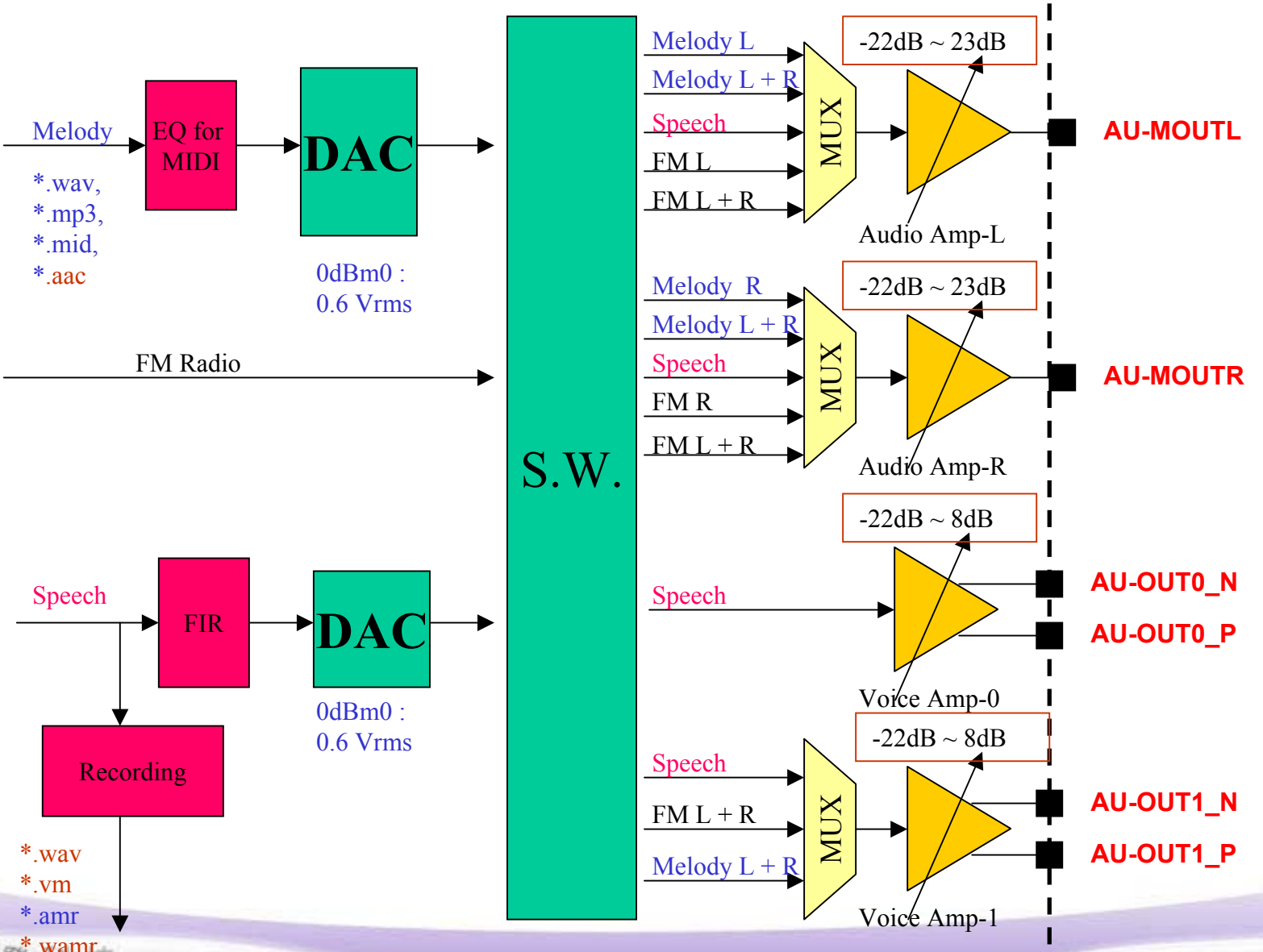
- Enter Engineer mode *#3646633# → Audio → Echo suppression
  - Energy Thresh 1, Delay 1 : Louder speaker mode
  - Energy Thresh 2, Delay 2 : Normal mode (max. volume only)
- Parameter descriptions
  - Energy Gap = Low byte (Energy Thresh X) * 6dB
  - Transition Time = High byte (Energy Thresh X) * 20msec
  - 1/Gain = Delay X / 32767



MT6218B overview – Audio block (3/4)

- DSP – Recorder
  - Idle mode
    - ✓ *.wav : PCM/ADPCM
    - ✓ *.vm : EFR (MT6205 only)
    - ✓ *.amr : AMR 5.15Kbps (MT6218, MT6219)
    - ✓ *.awb : Wide band AMR (MT6219 only)
  - Talking mode
    - ✓ *.wav : PCM/ADPCM
    - ✓ *.vm : Depend on codec type (MT6205 only)
    - ✓ *.amr : AMR 5.15Kbps (MT6218, MT6219)
    - ✓ *.awb : Wide band AMR (MT6219 only)

MT6218B overview – Audio block (4/4)



Uplink/Downlink PGA gain setting

	Uplink PGA gain	Downlink PGA gain	
		Audio Amp L/R	Voice Amp 0/1
Step size	2dB	3dB	2dB
Tunable Range	0~42dB	-22~23dB	-22~8dB
0dBm0	0.2Vrms	0.6Vrms	0.6Vrms

Enter *#3646633# → Audio → Normal mode/ Headset mode/LoudSp mode

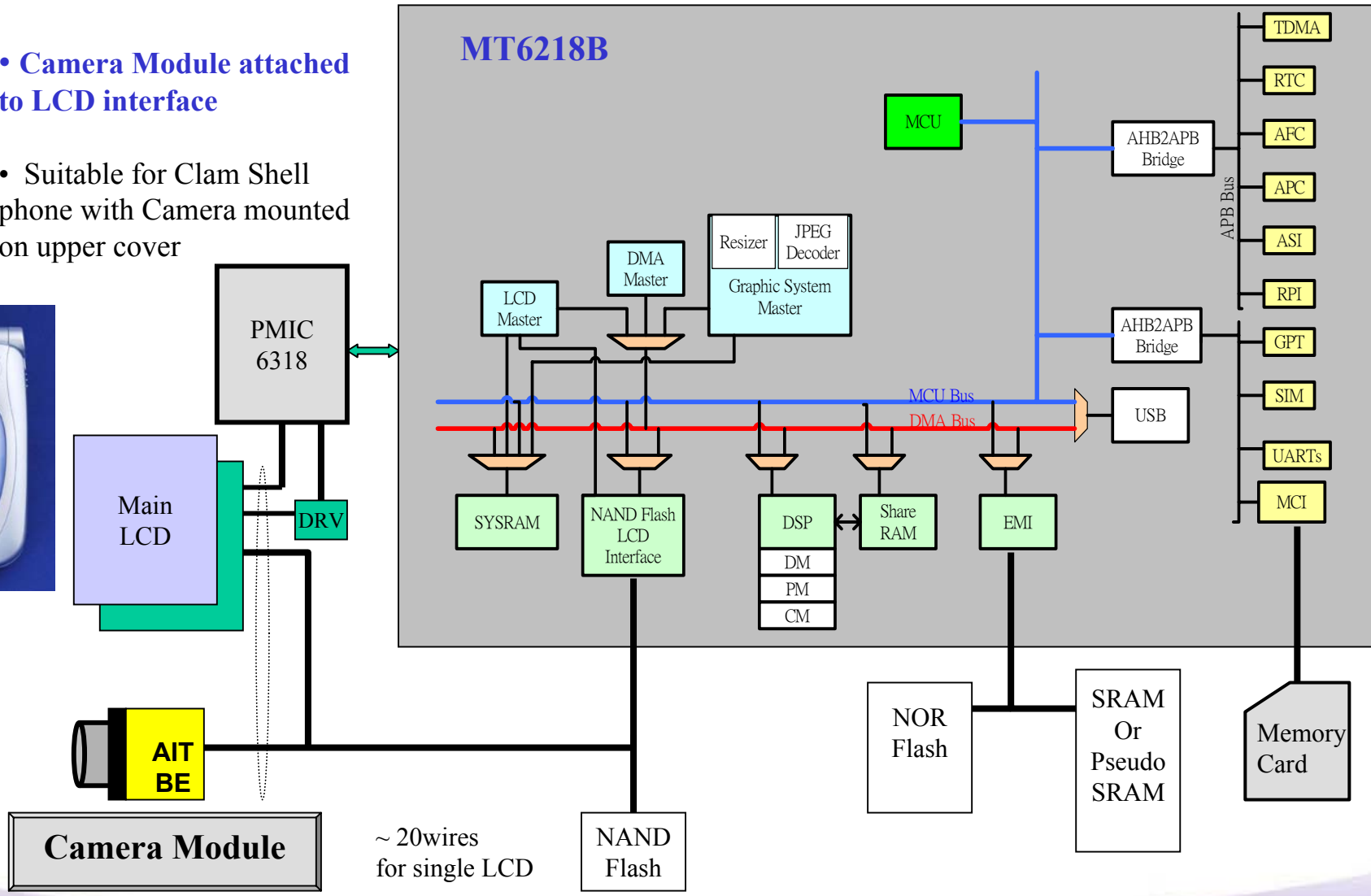
Engineer mode	Microphone	Melody	Speech
Tunable Range	0~255	0~255	0~255
Step size	16 (2dB)	16 (3dB)	16 (2dB)

Application circuit discussion

- EMI & NFI & Memory Card
  - Camera
  - LCM
  - NOR Flash
  - NAND Flash
  - SRAM
  - MMC/SD/MS/MSPro
- Power & Charger function
- Accessory Detection
- Audio
- USB
- Keypad
- SIM
- PWM
- Alerter
- Test point

MT6218 B+ Camera Module (Configuration 1)

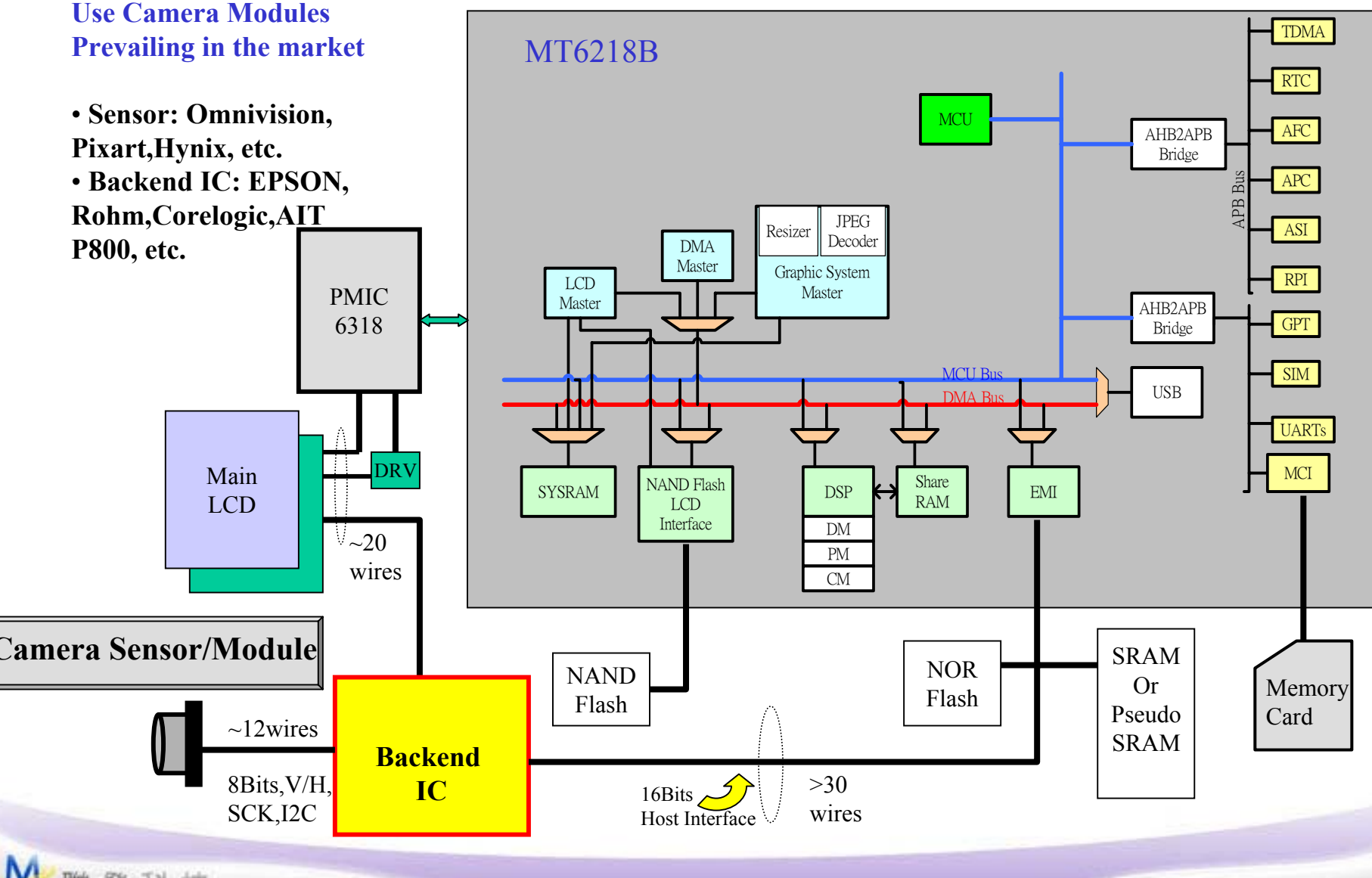
- **Camera Module attached to LCD interface**
- Suitable for Clam Shell phone with Camera mounted on upper cover



MT6218B + Camera Module configuration 2

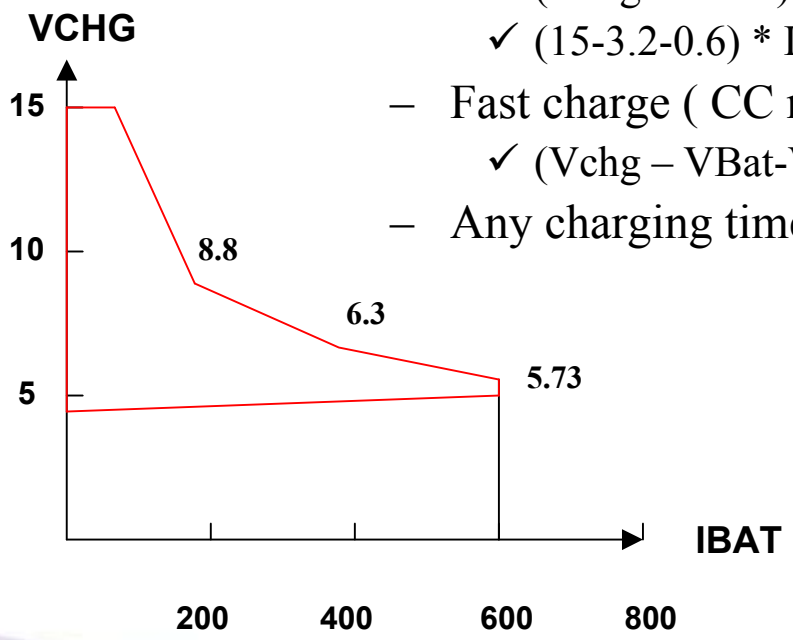
Use Camera Modules Prevailing in the market

- **Sensor: Omnivision, Pixart,Hynix, etc.**
- **Backend IC: EPSON, Rohm,Corelogic,AIT P800, etc.**



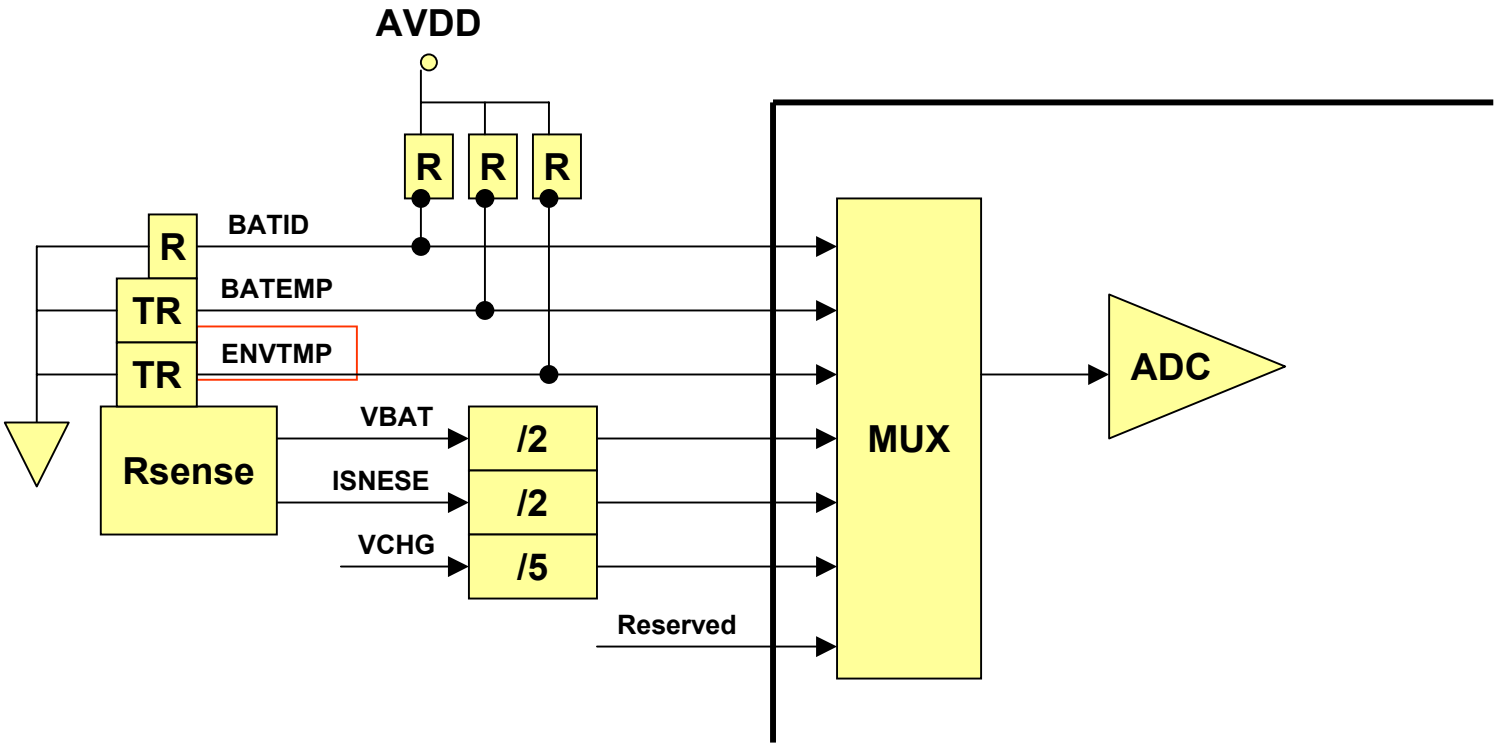
Application circuit - Power & Charger function

- Charger selection
  - Max. charger voltage 15V
  - Max. battery charge current (1C for Li-ion 600mAHr)
  - Max. power dissipation of external PMOS (1W)
    - ✓ (Vchg-3.2-0.6)*0.6 < 1 ➔ Vchg < 5.73V
    - ✓ (Vchg-3.2-0.6)*0.4 < 1 ➔ Vchg < 6.3V
    - ✓ (Vchg-3.2-0.6)*0.2 < 1 ➔ Vchg < 8.8V
    - ✓ (15-3.2-0.6) * I < 1 ➔ I < 99mA
  - Fast charge (CC mode charging current always = 1C)
    - ✓ (Vchg – VBat-Vdiode –Von > 0 ➔ Vchg > 4.2 + 0.6 + 0.2 =5V
  - Any charging time VCHG > VBAT + 0.3 ➔ VCHG > 4.5 V



Application circuit - Power & Charger function

- AUXADC circuit
  - Rsense, BATEMP curve, ENVTMP curve

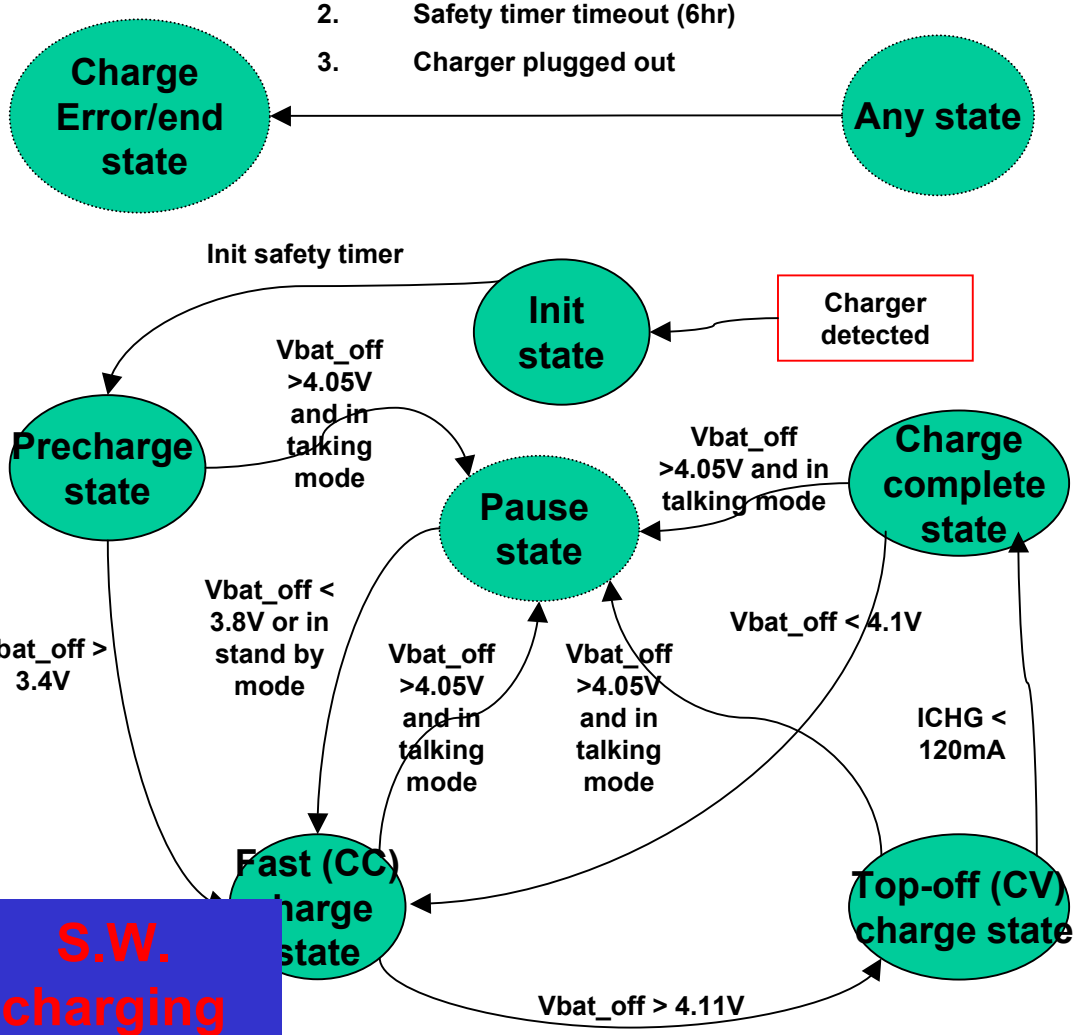


Application circuit - Power & Charger function

- Enter *#3646633# → device → Set default level → battery
  - LEV1 : Power off
  - LEV2 : Transmit disable
  - LEV3 : Low battery alarm
  - LEV4 : Battery level 0 → 1
  - LEV5 : Battery level 1 → 2
  - LEV6 : Battery level 2 → 3

Application circuit - Power & Charger function

1. Check ADC fail,
2. Safety timer timeout (6hr)
3. Charger plugged out



S.W. charging algorithm

ADC check for abnormal condition

a. Vbat > 4.5V ➔ Battery over voltage

b. Vchg > 6.5 or Vchg < 3 ➔ Invalid charger

c. BATEMP < 0oC or BATEMP > 45oC ➔ Battery temp. too cold or over heat

d. BATID ➔ N.A.

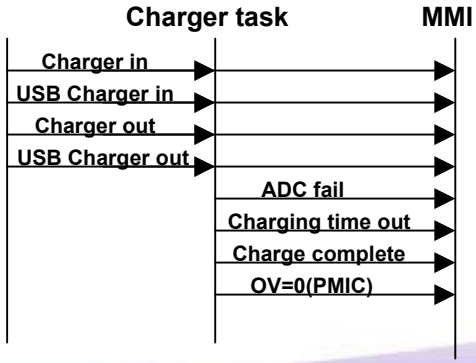
e. ICHGon > 1A or ICHGon < 20mA ➔Invalid charger or battery

f. ICHGoff > 1A ➔ Charger fail

P.S. XXX_on : ADC value is measured during pulse on charging and RF off state.

xxx_off : ADC value is measured during pulse off charging and RF off state.

xxx : ADC value is measured during pulse on and pulse off charging and RF off state.



Application circuit - Power & Charger function

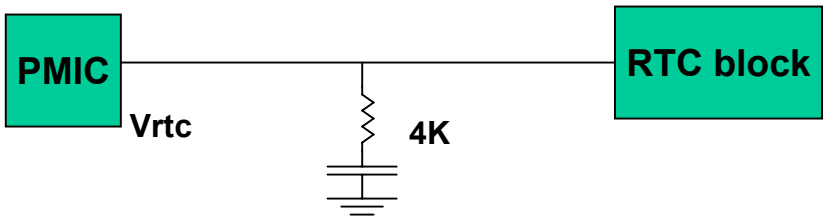
- S.W. protection mechanism for charging
  - 0 < BATEMP < 50 degree C (from battery spec.)
  - 4.5 < VCHG < 6.5 V (from PMIC spec. and charger spec.)
  - ICHG < 800mA (from charger & battery spec.)
  - BATID (N.A.)
  - OV (VBAT > 4.5V) (from battery spec.)
  - Safety timer 6Hr

ADC calibration and measurement

- 2 channel ADC calibration is a must.
  - Worse case下如不做calibration, charging current 在4.2V會有 4.2 * (101/200-99/200) * 2 / 0.33 = 250mA 的誤差, 會使得電池永遠都充不飽
  - ADC calibration. summary如下.
    - ✓ a. calibration VBAT 3.4/4.2 兩點在ADC channel 0 and channel 3
    - ✓ b. ADC channel 1,2,4 的slope/offset直接copy ADC0
- 請特別注意只要ADC(10bits) cailbration有正負1個bit的誤差 即會產生2.8/1024*2/0.33 * 2 = 34mA
- 建議ADC pass criterion 爲
  - 1. ADC0 : test at 3.6V +-40mV (等factory有大量資料後再做修正)
  - 2. ADC3-ADC0/0.33 > 20mA (等factory有大量資料後再做修正)

Application circuit - RTC function

- For S.W. power on latch (power on key detection)
  - VRTC > 0.8V is a must (0.8V is a minimal working voltage of RTC block)
  - 2 sec debounce time (first power on)
- RTC charging current < 1~5mA (from PMIC spec.)
  - If charge current > 1mA, Vrtc will have a big drop. In order to complete a normal power on @ RTC cap deep discharge. RTC charging current < 1mA is a must
- RTC charge current must be limited to 1.5V/4K = 0.375mA
  - Vrtccap maximal rising time = 40mF * 0.8/ 0.375 mA = 85 sec
  - Vrtcap full charging time = 160 sec. Stand by time > 10Hr



Application circuit - Accessory detection

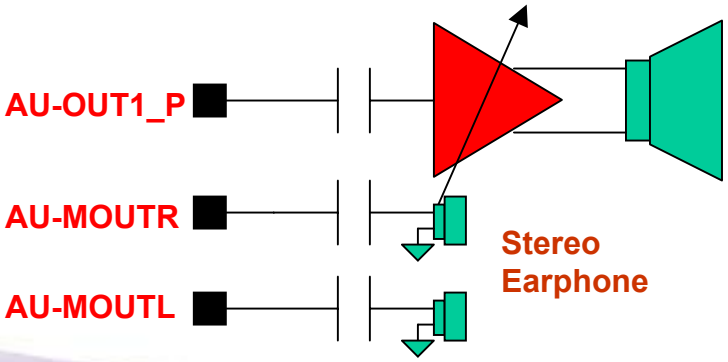
- Bottom connector (Download cable/Earphone)
  - One interrupt pin is used to detect accessory plugged in/out.
  - One ADC channel is used to detect accessory ID.
- Earphone Jack
  - One interrupt pin is used to detect accessory plugged in/out.
  - One ADC channel is used to detect accessory ID.
- USB & Charger
  - 2 Interrupt
  - 1 interrupt + 1 ADC

Application circuit discussion - Audio

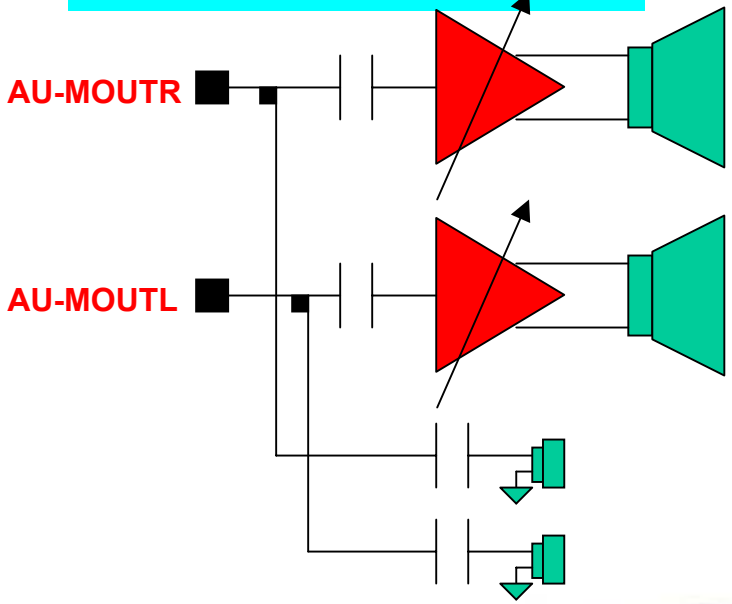
- External audio device configuration

Case	Earphone	Louder speaker
1	Mono	Mono
2	Mono	Stereo
3	Stereo	Mono
4	Stereo	Stereo

Case 3 Stereo Mono



Case 4 Stereo Stereo



Application circuit discussion - Audio

- Audio Gain budget planning
  - Earphone : External 430 ohm is suggested

Digital output			Analog PGA			External resister 430 ohm	Vpp of earphone	Power dissapation of earphone
dBm0	Vrms(V)	Vpp(V)	PGA Gain	Vpp(V)	Setting	Gain (dB)	Vpp(V) 430	Vpp(V) 430
-3	0.424767471	1.201423836	-22	0.095432487	0	-23.1898399	0.006610042	0.000170674
-3	0.424767471	1.201423836	-19	0.134801972	16	-23.1898399	0.009336933	0.00034054
-3	0.424767471	1.201423836	-16	0.190412846	32	-23.1898399	0.013188769	0.000679467
-3	0.424767471	1.201423836	-13	0.268965294	48	-23.1898399	0.018629631	0.001355715
-3	0.424767471	1.201423836	-10	0.379923576	64	-23.1898399	0.026315053	0.002705008
-3	0.424767471	1.201423836	-7	0.536656315	80	-23.1898399	0.037171	0.0053972
			-4	0.758047193	96	-23.1898399	0.052505433	0.01076883
			-1	1.070770121	112	-23.1898399	0.074165896	0.021486641
			2	1.512502997	128	-23.1898399	0.104762112	0.042871485
			5	2.13646727	144	-23.1898399	0.147980417	0.085539859
			8	3.01784231	160	-23.1898399	0.209027895	0.170674456
-3	0.424767471	1.201423836	11	4.2628 263			749	0.340540311
-3	0.424767471	1.201423836	14	6.02138 886			481	0.679467249
-3	0.424767471	1.201423836	17	8.50542 397			651	1.355715396
-3	0.424767471	1.201423836	20	12.0142 836	224	-23.1898399	0.852155038	2.705007839
-3	0.424767471	1.201423836	23	16.970 275	240	-23.1898399	1.175450234	5.397200202

Single-end 2.8V
Differential 5.6V

Reserved for speech

Application circuit discussion - Audio

- Audio Gain budget planning
  - Louder speaker (External amp. Gain = 8 is suggested)

Digital output			Analog PGA			External Loud Speaker Amp.							
dBm0	Vrms(V)	Vpp(V)	PGA Gain	Vpp(V)	Setting	Gain (dB)	Gain (dB)	Gain (dB)	Gain (dB)	Vpp(V) 24	Vpp(V) 18	Vpp(V) 12	Vpp(V) 6
-3	0.42476747	1.2014238	-22	0.095432487	0	24	18	12	6	1.512502997	0.758047193	0.379923576	0.190412846
-3	0.42476747	1.2014238	-20	0.120142384	16	24	18	12	6	1.904128458	0.954324875	0.478295444	0.23971557
-3	0.42476747	1.2014238	-18	0.1512503	32	24	18	12	6	2.397155704	1.201423836	0.602138289	0.301784023
-3	0.42476747	1.2014238	-16	0.190412846	48	24	18	12	6	3.017840231	1.512502997	0.758047193	0.379923576
-3	0.42476747	1.2014238	-14	0.23971557	64	24	18	12	6	3.799235756	1.904128458	0.954324875	0.478295444
-3	0.42476747	1.2014238	-12	0.301784023	80	24	18	12	6	4.782954438	2.397155704	1.201423836	0.602138289
-3	0.42476747	1.2014238	-10	0.379923576	96	24	18	12	6	6.021382886	3.017840231	1.512502997	0.758047193
-3	0.42476747	1.2014238	-8	0.478295444	112	24	18	12	6	7.580471929	3.799235756	1.904128458	0.954324875
-3	0.42476747	1.2014238	-6	0.602138289	128	24	18	12	6	9.543248745	4.782954438	2.397155704	1.201423836
-3	0.42476747	1.2014238	-4	0.758047193	144	24	18	12	6	12.01423836	6.021382886	3.017840231	1.512502997
-3	0.42476747	1.2014238	-2	0.954324875	160	24	18	12	6	15.12502997	7.580471929	3.799235756	1.904128458
-3	0.42476747	1.2014238	0	1.201423836	176	24	18	12	6	19.04128458	9.543248745	4.782954438	2.397155704
			2	1.512502997	192	24					12.01423836	6.021382886	3.017840231
			4	1.904128458	208	24					15.12502997	7.580471929	3.799235756
			6	2.397155704	224	24					19.04128458	9.543248745	4.782954438
				3.017840231	240	24	18	12	6	47.82954438	23.97155704	12.01423836	6.021382886

Single-end 2.8V
Differential 5.6V

Reserved for speech

Connect to Driver

- **Audio driver**
  - mcu\custom\audio\XXXX_BB\audcoeff.c
  - mcu\custom\audio\XXXX_BB\nvram_default_audio.c
- **Charging Parameter**
  - mcu\custom\drv\misc_drv\XXXX_BB\chr_parameter.c
- **Flash Range Configuration**
  - mcu\custom\flash\XXXX_BB\FlashConf.c
- **GPIO**
  - mcu\custom\drv\misc_drv\XXXX_BB\gpio_drv.c
- **ADC channel assignment**
  - mcu\custom\drv\misc_drv\XXXX_BB\adc_channel.c
- **EINT channel assignment**
  - mcu\custom\drv\misc_drv\XXXX_BB\eint_def.c
- **Keypad net definition**
  - mcu\custom\drv\misc_drv\XXXX_BB\keypad_def.c
- **PWM and Battery level parameters**
  - mcu\custom\drv\misc_drv\custom_hw_default.c

Connect to Driver

- Hardware resource table
  - Flash type/Main LCM/Sub LCM
  - GPIO/EINT/ADC configuration
  - Audio connection and parameters
  - Charger parameters
  - Keypad mapping table
  - PWM & battery default level setting

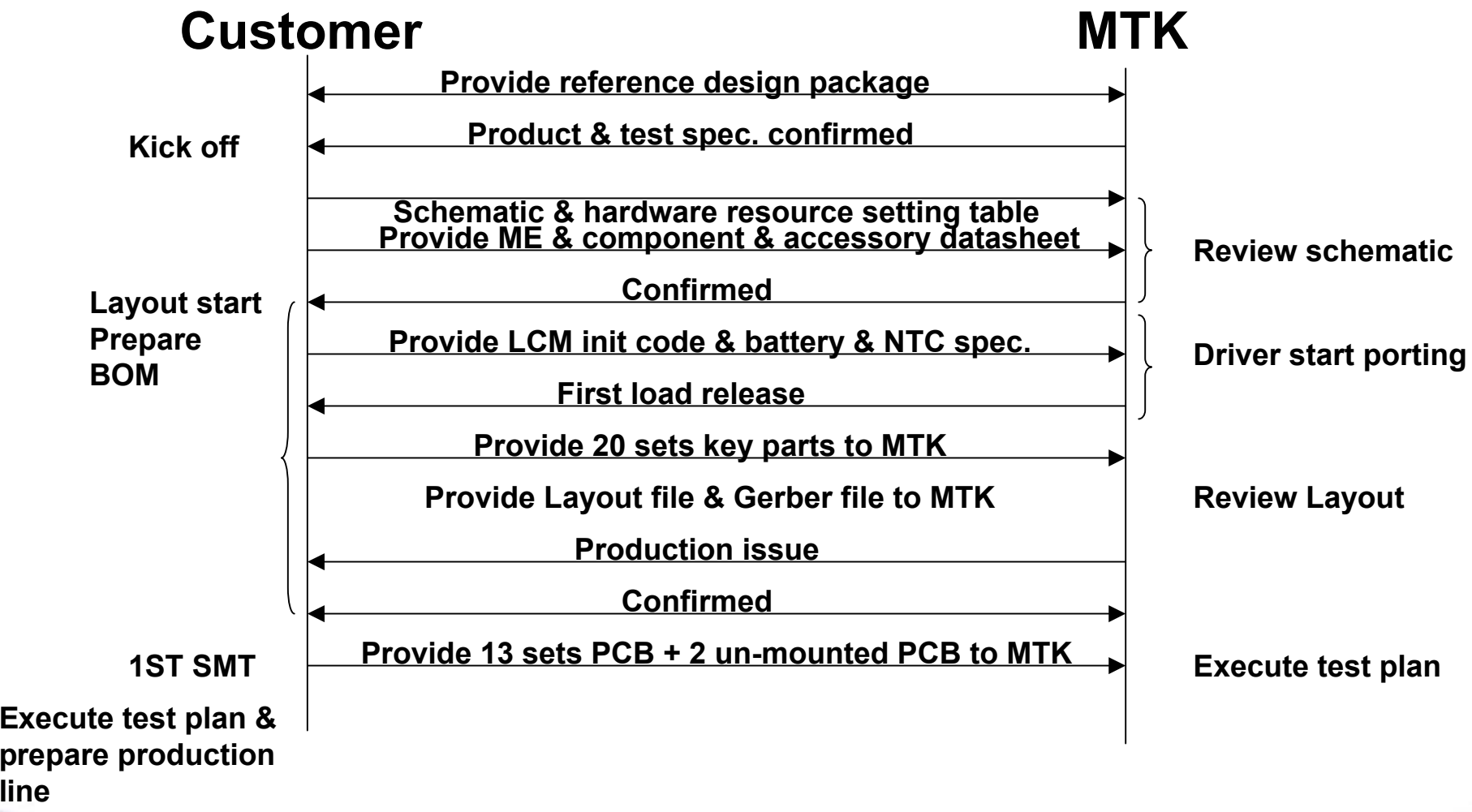
Base band test items overview

- Audio (speech) FTA, Field try
- ESD test, EMC
- SIM FTA
- Melody loudness and quality test
- Charger, battery, charging algorithm
- Power on/off test
- Battery level monitor
- auto power off test.
- Low power test
- RTC alarm, accuracy and stand by time
- USB compliant test
- Component verification and quality control.
- LEDs/LCD luminance test
- Vibrator vibration and noise test
- Safety test

Base band related tools overview

- **Target**
  - Factory mode (Enter *#66*#) (MMI test station)
  - Engineer mode (Enter *#3646633#)
    - Speech UL/DL gain, side tone (normal mode, headset mode, hand free mode)
    - Echo suppressor
    - Melody gain setting
    - Key tone gain setting
    - Hardware control and monitor
    - ….
- **Fast download tool**
  - Code download
- **Meta tools**
  - ADC calibration (Calibration station)
  - Melody EQ fine tune
  - Speech parameter setting for FTA (PGA gain, FIR filter)
- **Hardware test tool**
  - AT command based (MMI test station)
  - Base band function test for factory
  - Hardware control for engineer

Cooperation model with customer



Cooperation model with customer