

# 資訊科技與數位生活

## IC產業的市場分析 -- 以手機市場為例

創惟科技

彭念劬

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**GENESYS**  
L O G I C



# 個人簡介

TM 彭念劬

TM 學歷

- § 交通大學資訊科學系學士
- § 交通大學資訊科學所碩士
- § 臺灣大學資訊工程所博士

TM 現職

- § 創惟科技 技術行銷副理



# 工作內容

## TM 尋找未來產品方向

- § 參加新技術研討會
- § 拜訪合作廠商
- § 專利檢索、佈局

## TM 確保新產品開發時程 (和研發合作)

## TM 確認量產流程 (和生管合作)

## TM 開發試產客戶 (和業務合作)



# 內容大綱

TM 創惟科技介紹

TM 手機市場分析

TM Q&A



# 創惟科技 *Genesys Logic, Inc.*

Founded: April, 1997  
IPO at Taiwan: May 22, 2001

Headquarter: Taipei, Taiwan  
Subsidiaries: Genesys Logic America, Inc. (USA)  
Eclat Holding Ltd. (SZ, China)

R&D Centers: Taipei, Taiwan  
San Jose, CA – USA  
Austin, TX – USA

Sales Office: Tokyo, Japan

Employees: 240



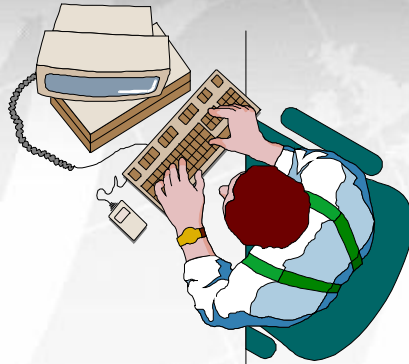
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# 積體電路產業研發流程



產品規劃



IC 設計師



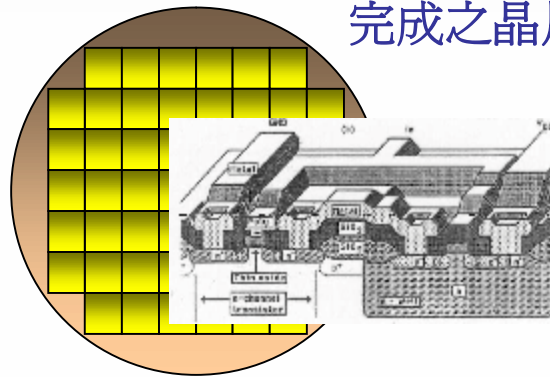
製程整合工程師



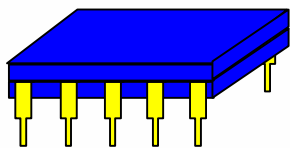
擴散工程師  
薄膜工程師  
黃光工程師  
蝕刻工程師



完成之晶片

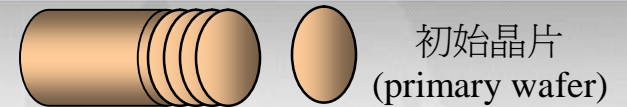


IC 成品

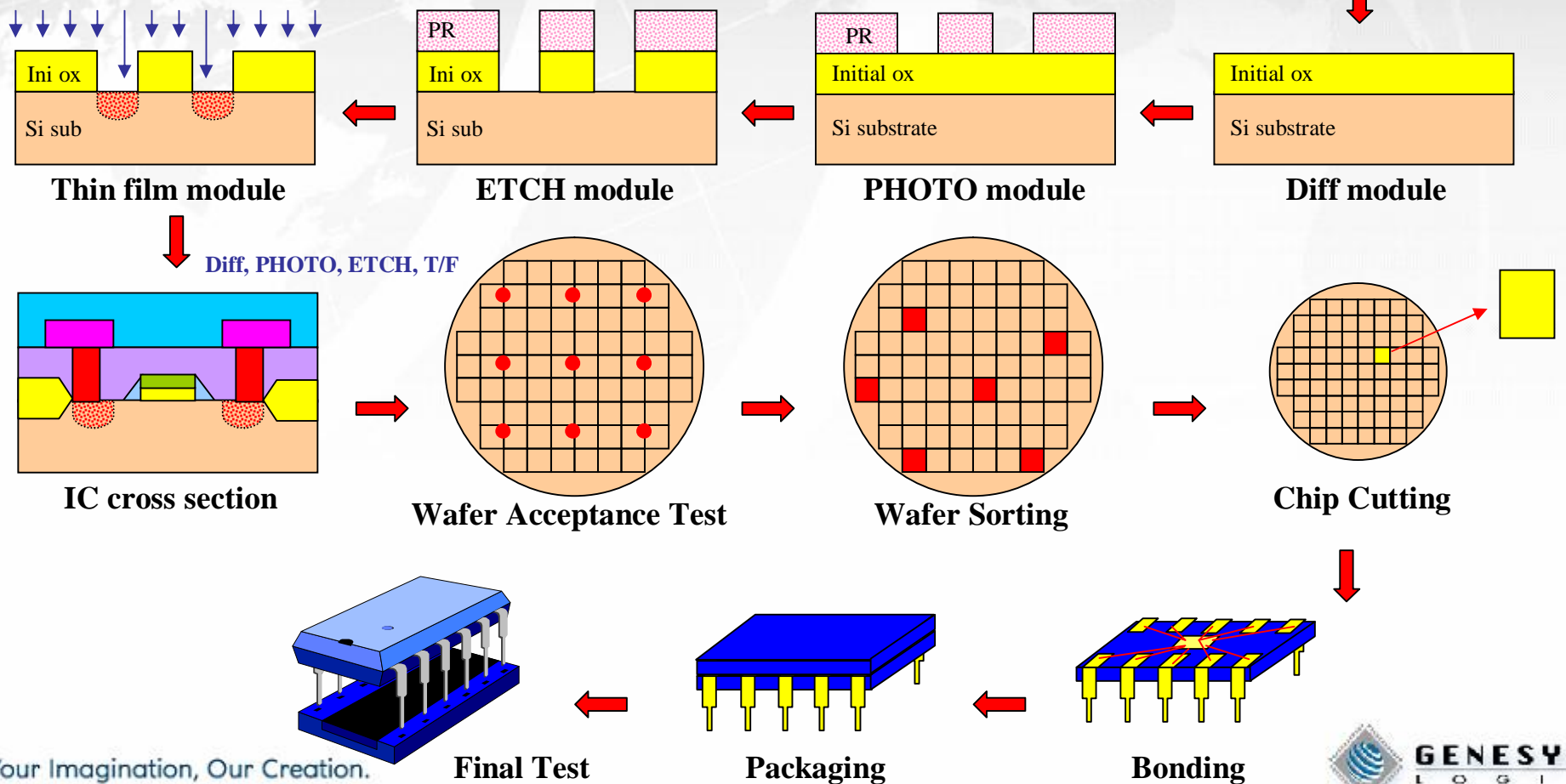


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# 積體電路製造流程



初始晶片  
(primary wafer)



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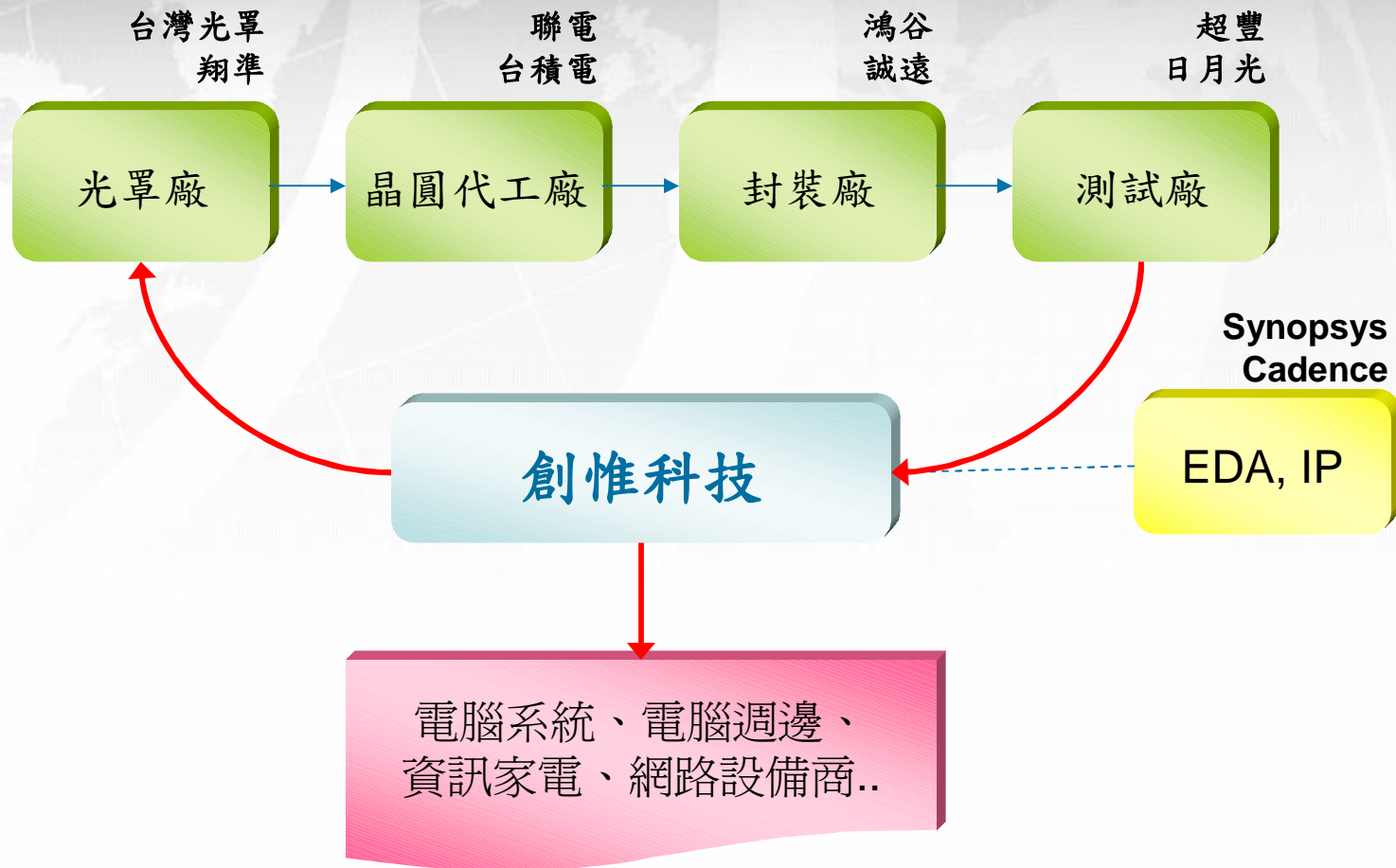
Final Test

Packaging

Bonding



# Industry Position





# Product Overview

## Storage Products

- n Card Reader: GL819, GL826, GL827/GL828
- n ATA/SATA Bridge: GL811, GL830
- n OTG: GL824
- n Card Controller: GL422, GL424, GL426
- n UFD/SSD: GL815, GL450

## USB Hub Products

- n GL850A, GL852, GL850G

## USB Video Bridges

- n Camera Controller: GL860, GL862, GL864
- n PC-TV: GL861, GL863

## PCI Express Products

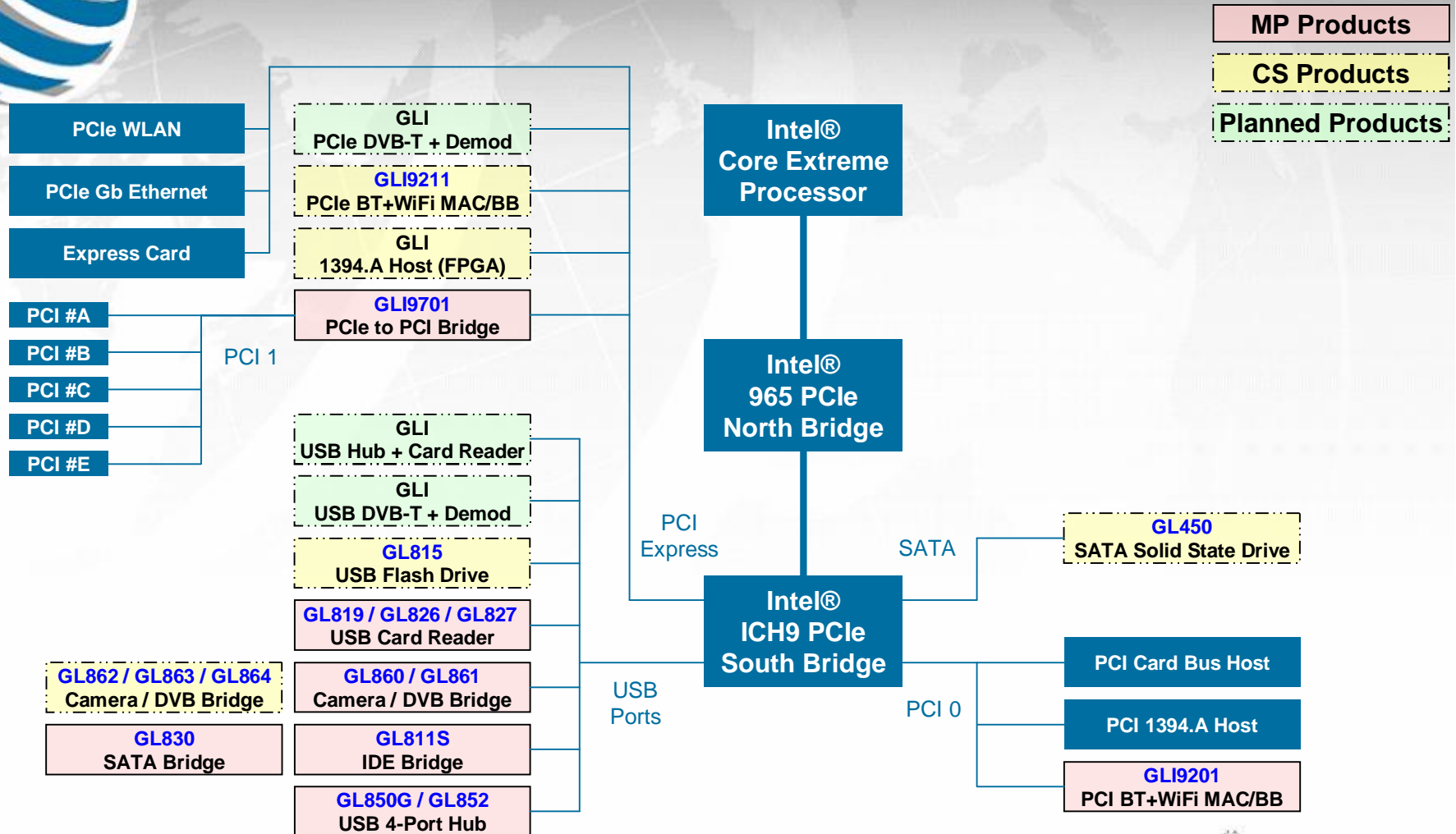
- n PHY: GL9711, GL9714
- n PCI Bridge: GL9701

## Wireless Products

- n GL9201, GL9211

## Silicon Intellectual Properties (SIPs)

# Desktop System Solution



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# Handset Market

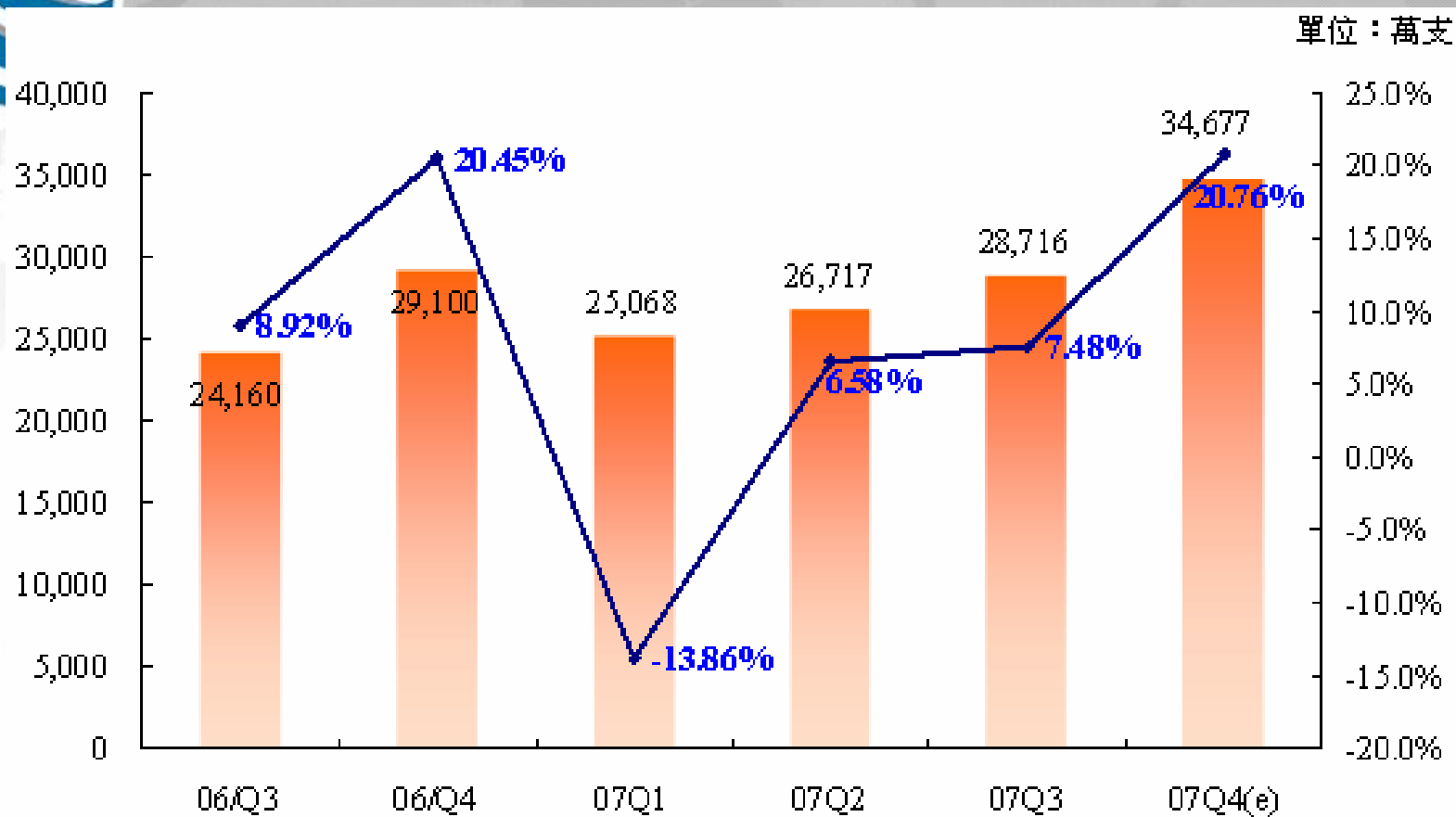


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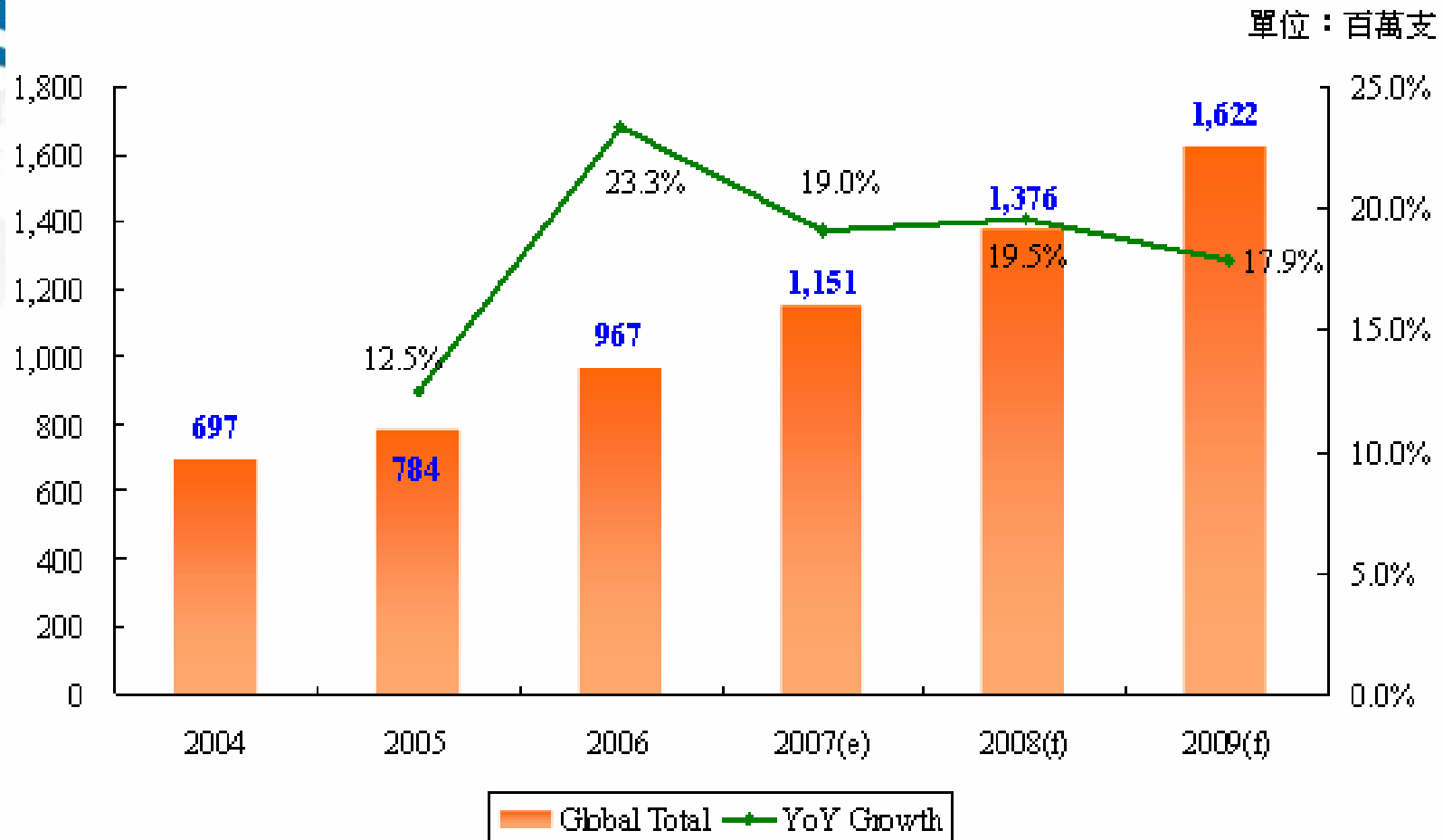
# 2007 Handset Market



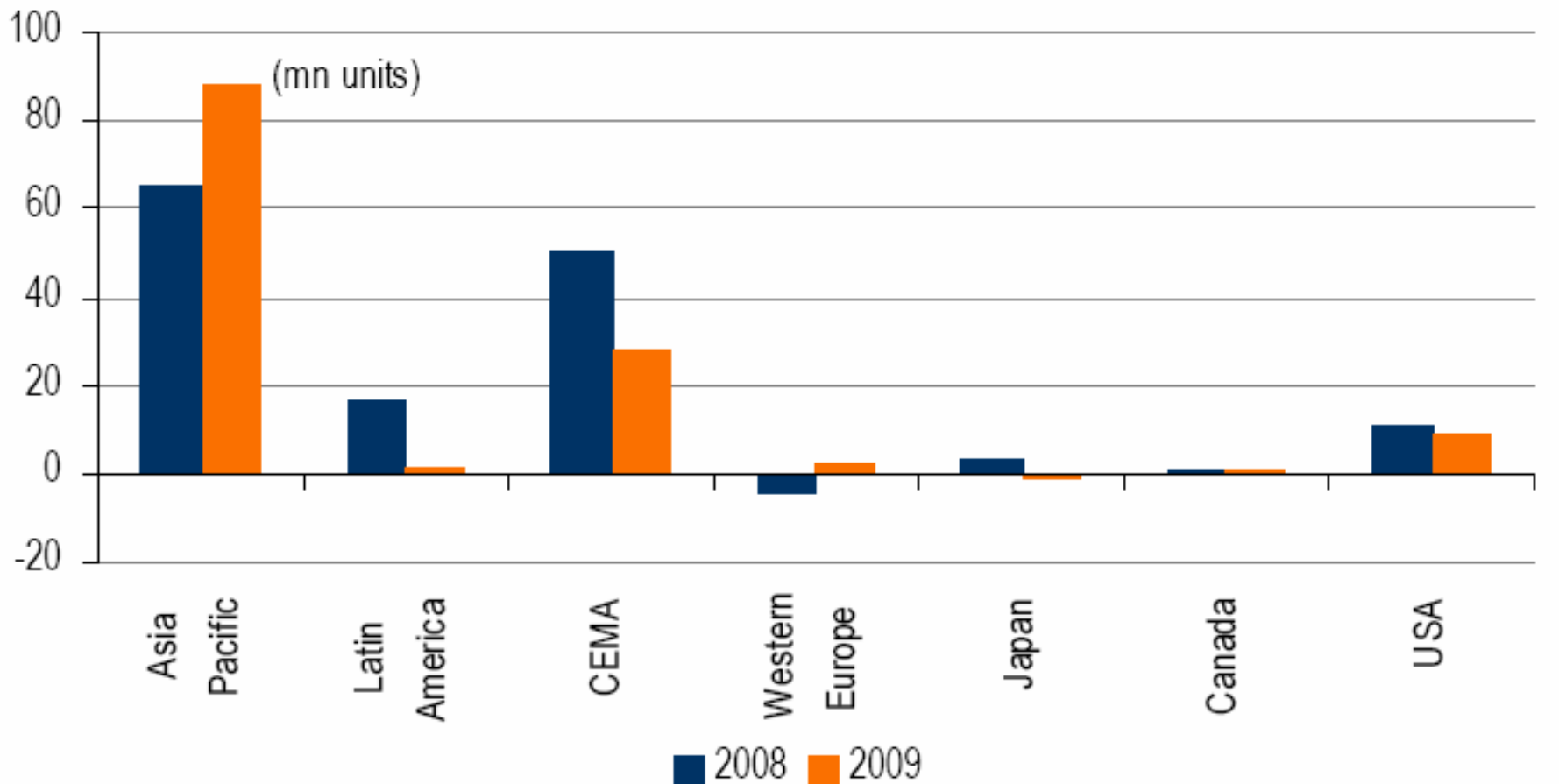
全球手機產量預測 — 全球手機 QoQ Growth



# Global Handset Forecast



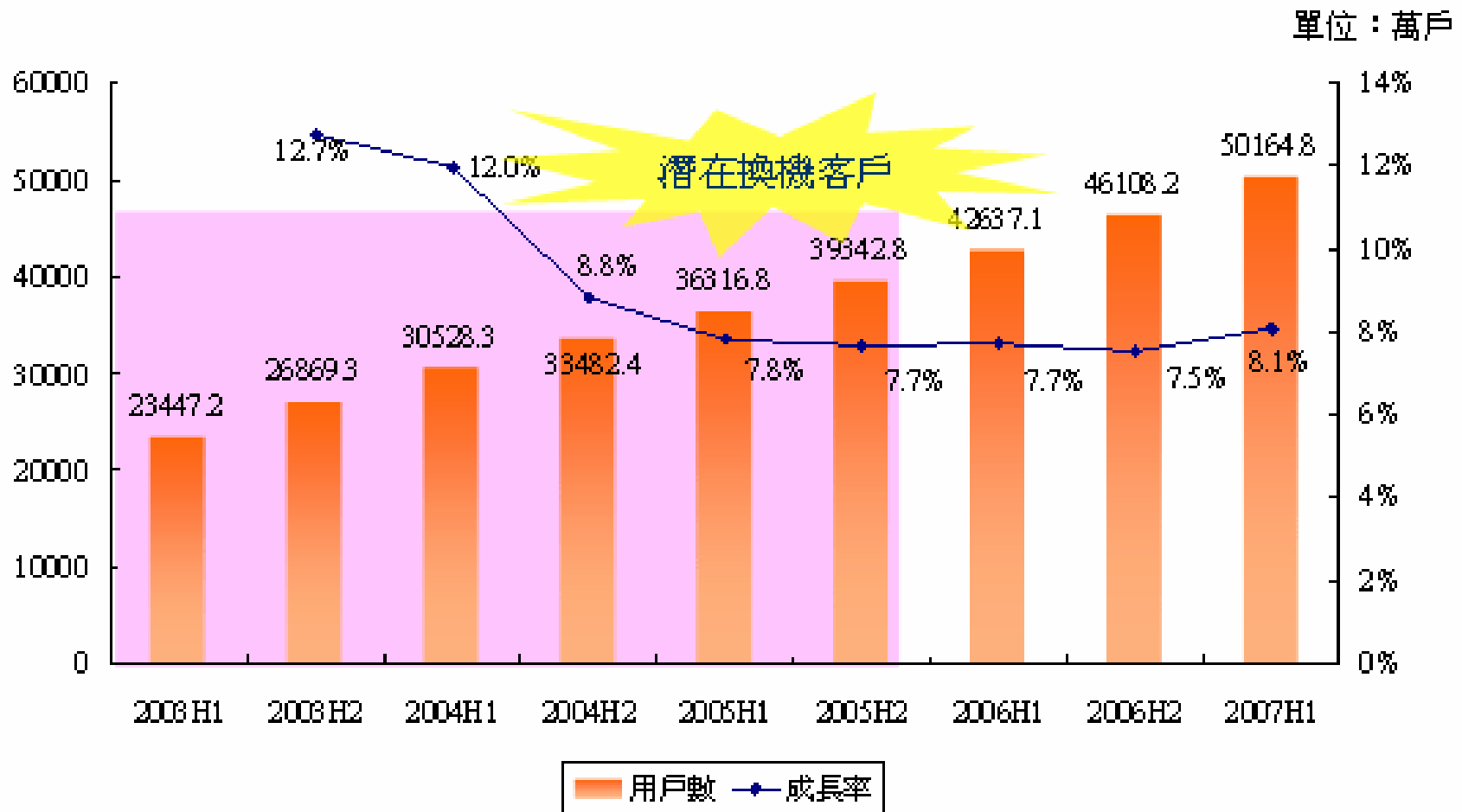
# Growth Driving in Emerging Markets



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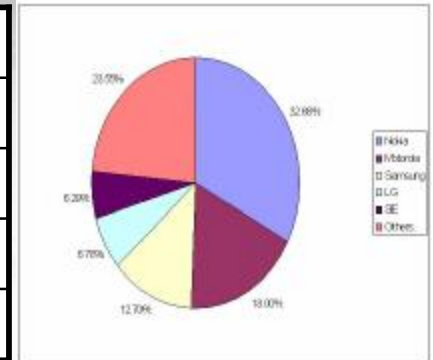
# China Handset Market



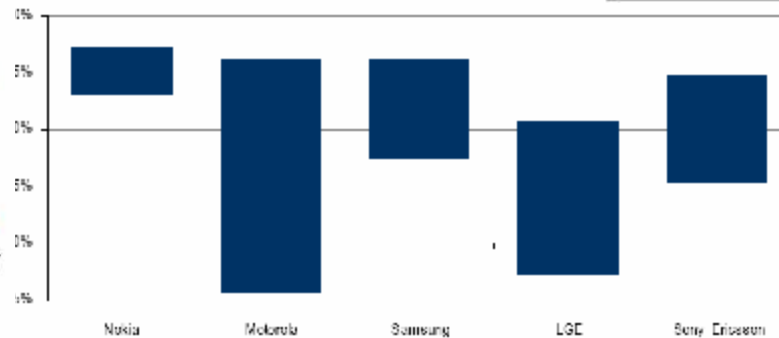
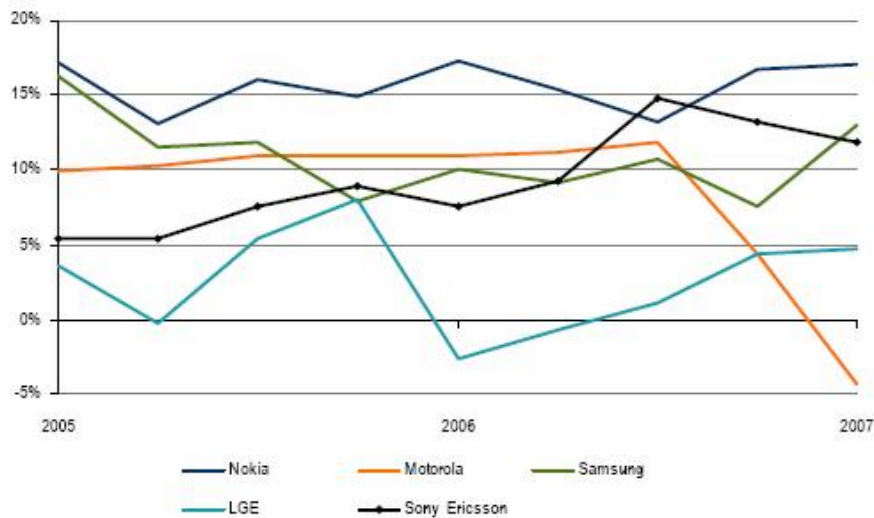
Source：信息產業部；拓璞產業研究所，2007/11

# Market Share and Profitability

(%)	4Q06	1Q07	2Q07	Qty (KK)	3Q07	Qty (KK)
<b>Nokia</b>	36.97	36.15	38.05	100.8	39.19	111.7
<b>Motorola</b>	22.92	18.02	13.05	35.5	14.95	42.6
<b>Samsung</b>	11.16	13.81	14.22	37.4	13.05	37.2
<b>S.E.</b>	9.07	8.65	9.47	24.9	9.09	25.9
<b>LG</b>	5.93	6.27	7.26	19.2	7.68	21.9
<b>Others</b>	13.95	17.1	18.02	47.4	16.04	45.7



## Profit





# Motivation

<sup>TM</sup> Why a handheld needs storage solutions?

- § USB (or USB 2.0) support
- § Memory Stick (MS/MS Pro) support
- § Higher data transfer speed
- § Multi-Level Cell (MLC) NAND flash support

<sup>TM</sup> The requirements should be separated into two markets:

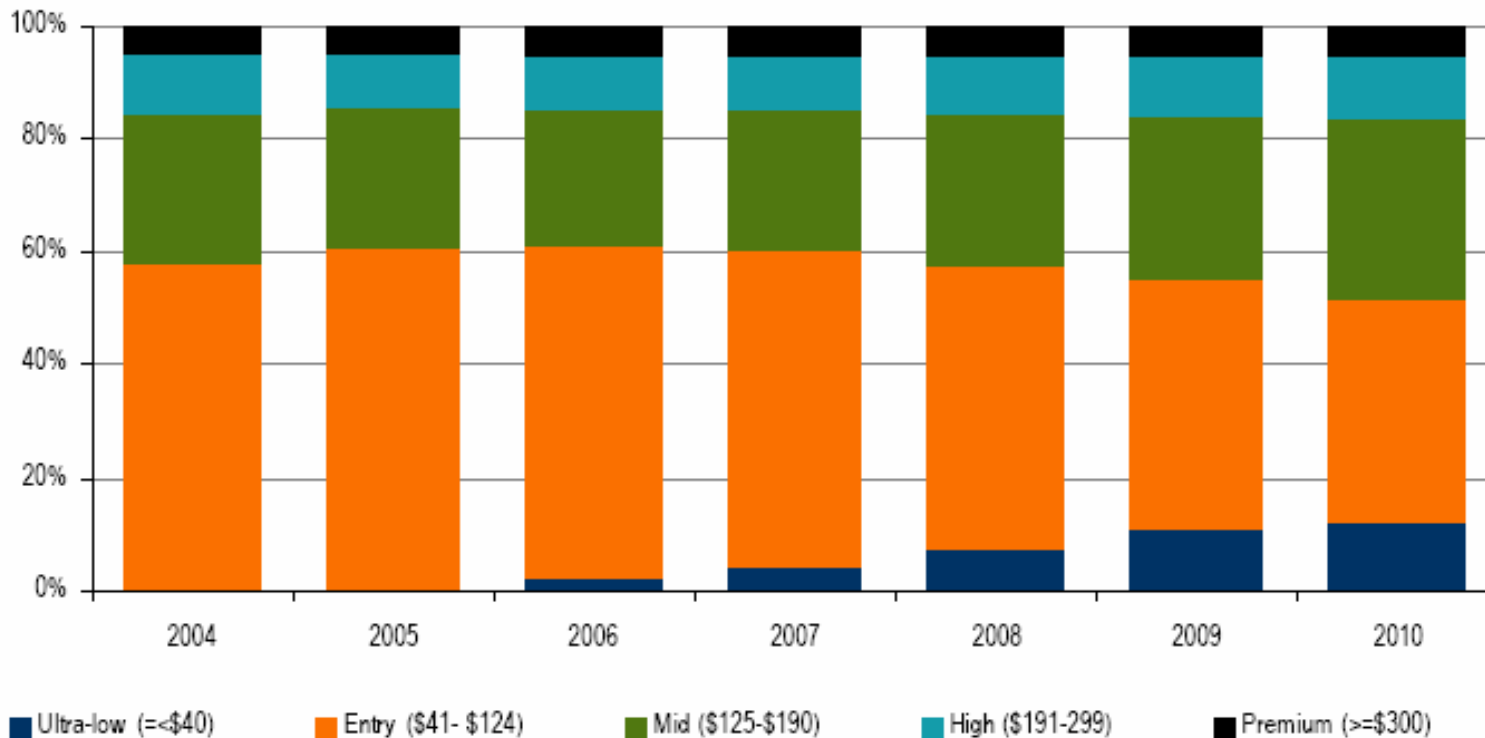
- § Entry-level feature phones
- § Premium multimedia smart phones

# Handset ASP Spreading



Table 11: Handset ASPs and ASP growth

HANDSET ASP (\$)	Q306	Q406	Q107	Q207	Q307	Q407E	2006	2007E	2008E
Nokia	118	115	117	121	113	116	121	116	114
Motorola	131	119	119	120	121	120	131	120	119
Samsung	176	168	155	148	151	148	176	150	140
LG	149	155	159	152	123	137	150	141	139
Sony-Ericsson	188	188	186	169	165	172	185	172	168
Top 5	139	134	134	134	127	130	139	131	127



Source: Strategy Analytics

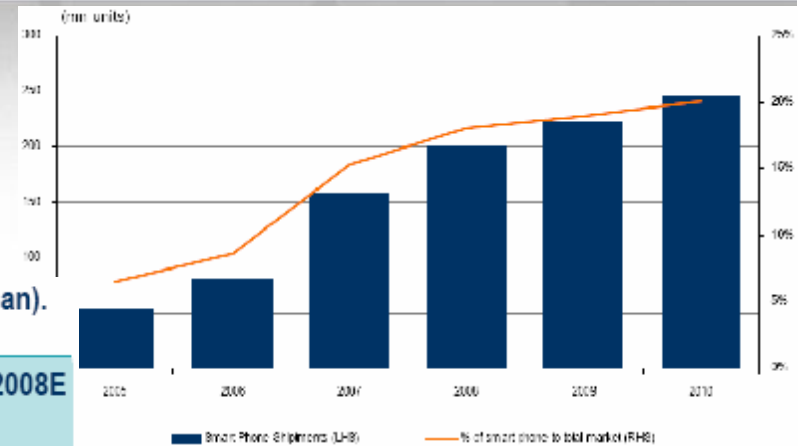




# Smart Phone Outgrowing

Table 2: IDC projects 32% y/y smartphone shipment growth in 2008 (42% growth ex Japan). North America is fastest growing market, contributing 21% of all shipments.

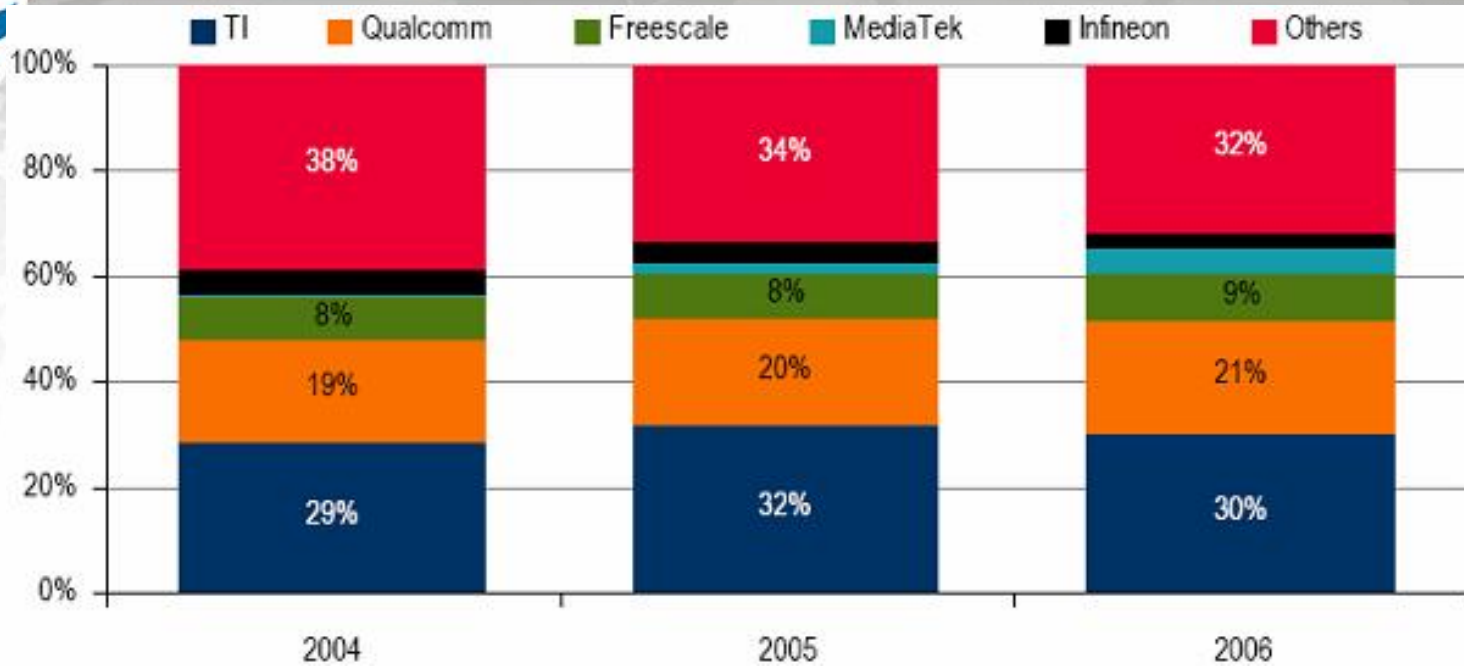
	2004	2005	2006	2007E	2008E
<b>SHIPMENTS (mm)</b>					
North America	4.6	5.7	9.2	20.5	33.8
Western Europe	6.1	11.0	14.6	23.7	33.4
CE-EMEA	2.5	11.5	13.8	22.0	30.9
APAC ex Japan	5.6	12.6	21.7	31.1	38.9
Japan	1.8	15.3	21.9	24.8	22.4
Latin America	0.3	0.4	0.7	3.2	5.5
<b>Total</b>	<b>20.9</b>	<b>56.5</b>	<b>81.9</b>	<b>125.2</b>	<b>164.9</b>
Total ex Japan	19.1	41.2	60.1	100.4	142.5
<b>Y/Y GROWTH</b>					
North America		24%	62%	122%	65%
Western Europe		80%	33%	62%	41%
CE-EMEA		353%	20%	59%	41%
APAC ex Japan		126%	73%	43%	25%
Japan		755%	43%	13%	-10%
Latin America		42%	69%	341%	74%
<b>Total</b>		<b>171%</b>	<b>45%</b>	<b>53%</b>	<b>32%</b>
Total ex Japan		116%	46%	67%	42%



Source: IDC; Merrill Lynch Estimates



# Top Players in Baseband Processor



	Nokia	Motorola	Samsung	LGE	S.E.
Texas Instruments	90%	20%		n.a.	10%
Infineon	GSM from 2008		n.a.	EDGE/ULC platforms	
Freescale		60%			
Qualcomm		20%	40%	60%	
STMicro	3G from 2009/10				(small portion for 3G)
Broadcom	EDGE from 2009				n.a.
NXP (Philips)			n.a.		n.a.
Ericsson (EMP)				10%	80%
ADI				n.a.	
MtekVision			n.a.		
CoreLogic			n.a.		

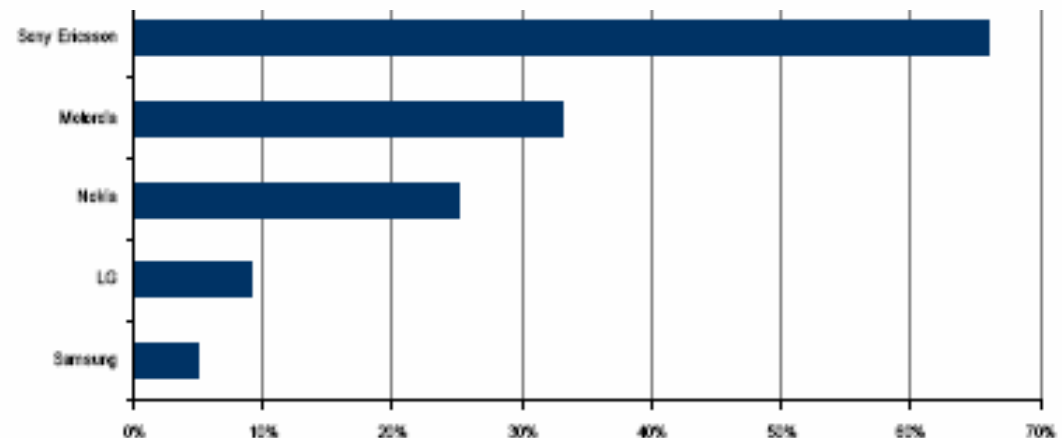


# Increase in Handset Outsourcing

**Table 2: Handset companies' ODM/EMS vendors**

	Existing ODM/EMS Suppliers	New ODM/EMS Suppliers ('07)
Nokia	Foxconn, Elcoteq, Jabil Circuit, Pantech & Curitel	BYD
Motorola	Foxconn, Flextronics, Compal Comm, Jurong Tech	BYD
Samsung	Foxconn	InTops, PnTel
LG	Arima	Gap-eul Plastic, Flextronics (negotiation stage)
Sony Ericsson	Foxconn, Arima, Flextronics, Elcoteq, Compal Comm	

Source: Company Information



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# Baseband Technology



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# TI Wireless Solution



**TCS2500 GSM Chipset  
Reference Design**



**TCS2600 GSM/GPRS Chipset  
Reference Design**



**OMAP850  
Reference Design**



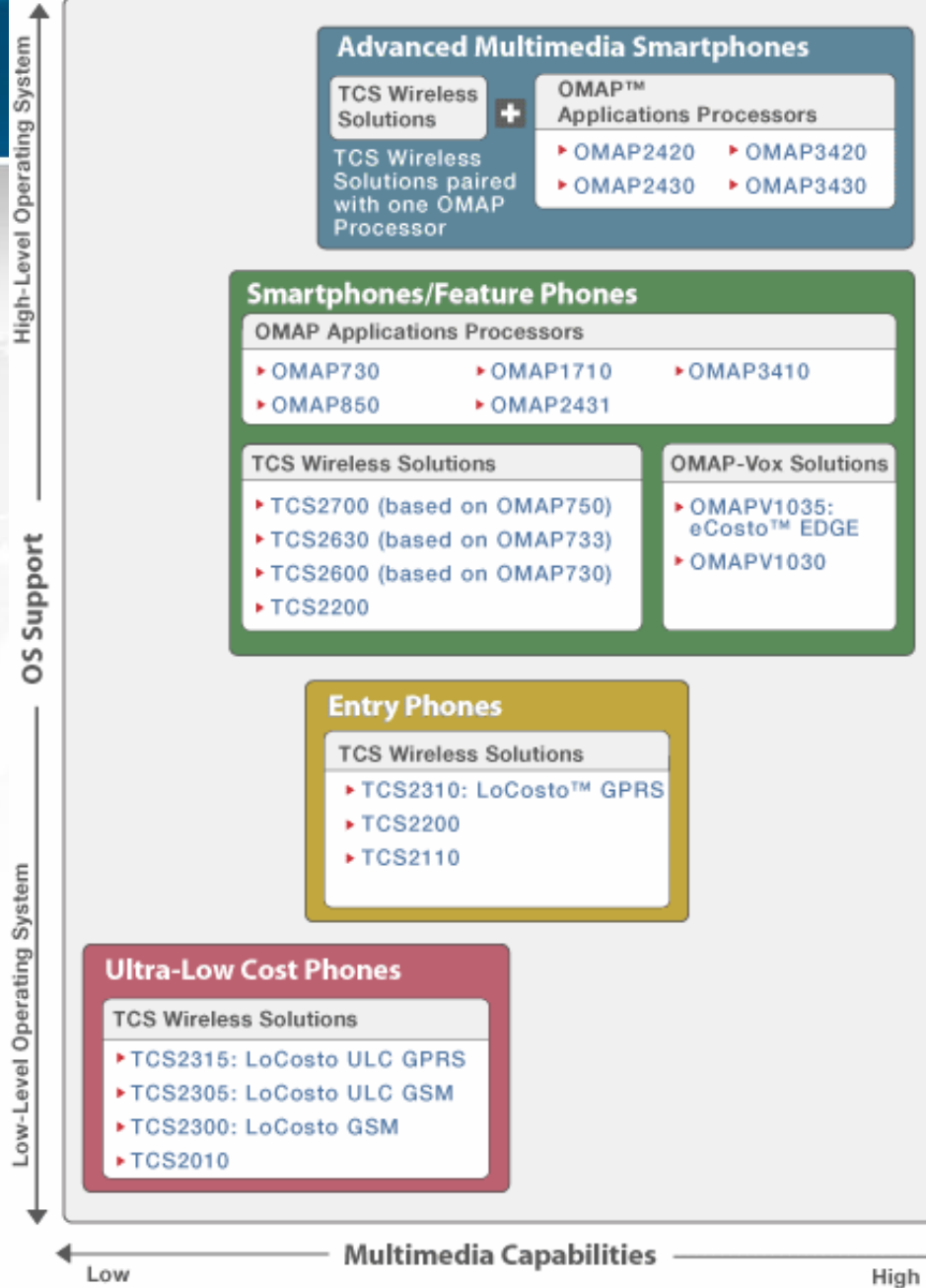
**BlueLink™ 5.0  
Bluetooth® Solution**

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## TI Wireless Solutions for All Mobile Market Segments



## Complementary Connectivity Solutions

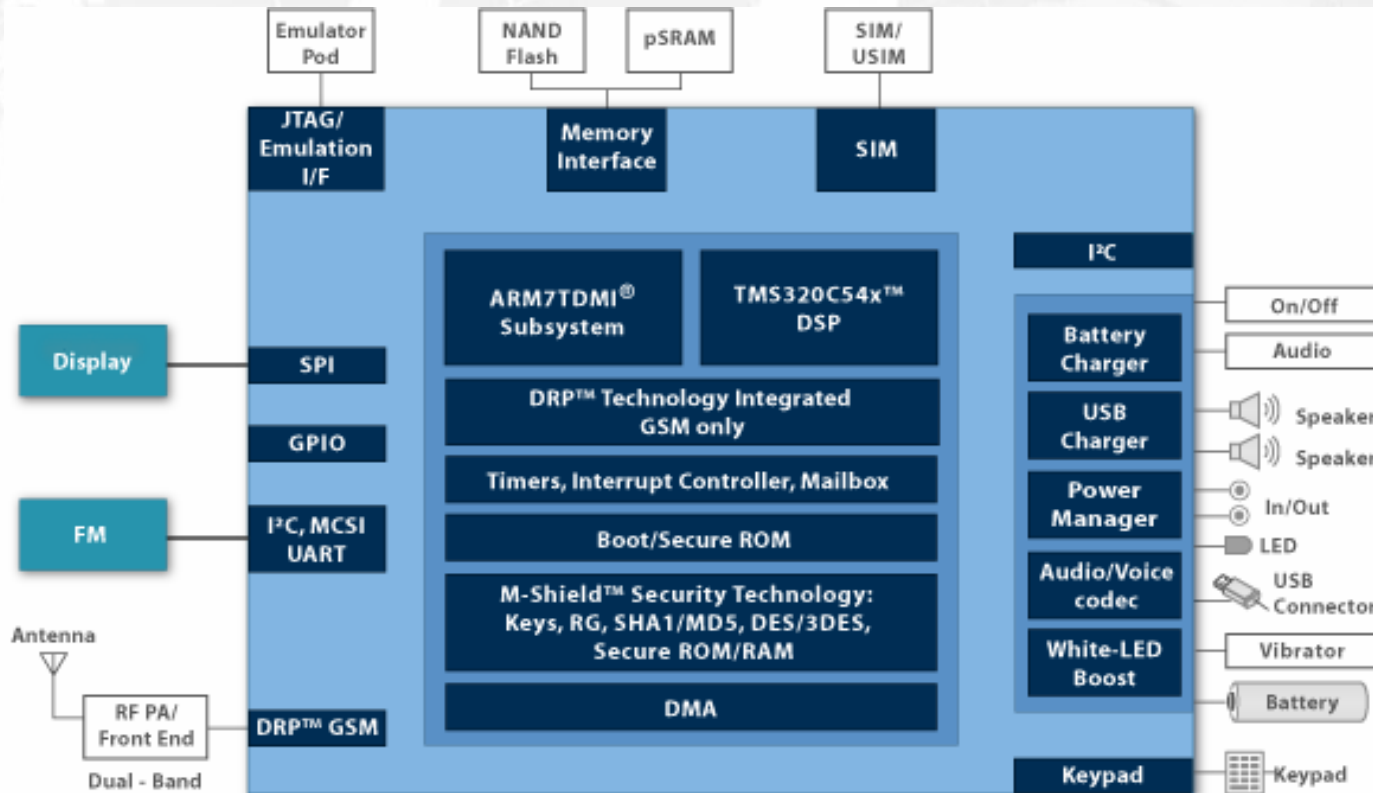


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# TI TCS2305 "LoCosto ULC" GSM

- TM No USB and SD supports exist.
- TM MTK 6223 may be similar with this one.

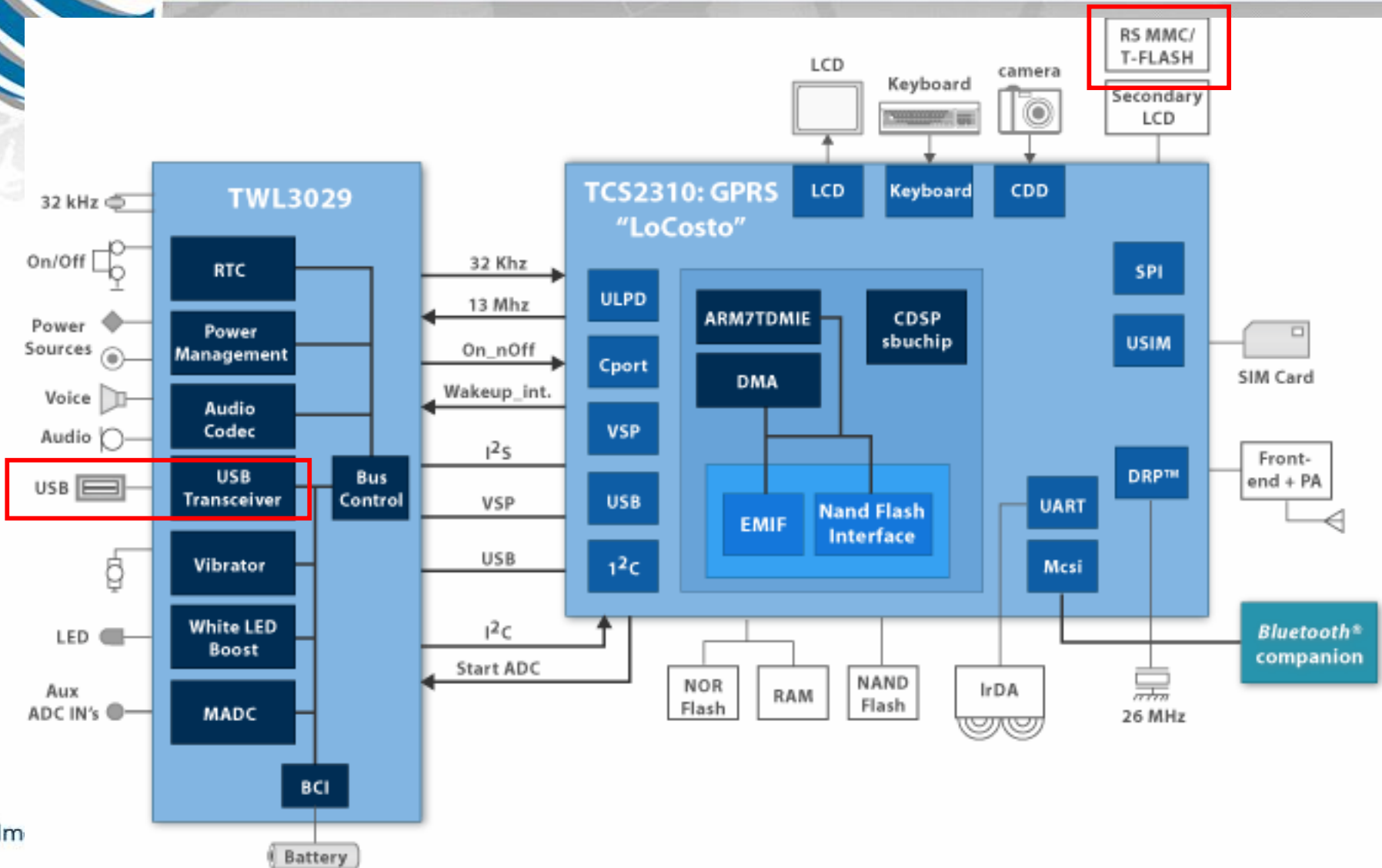


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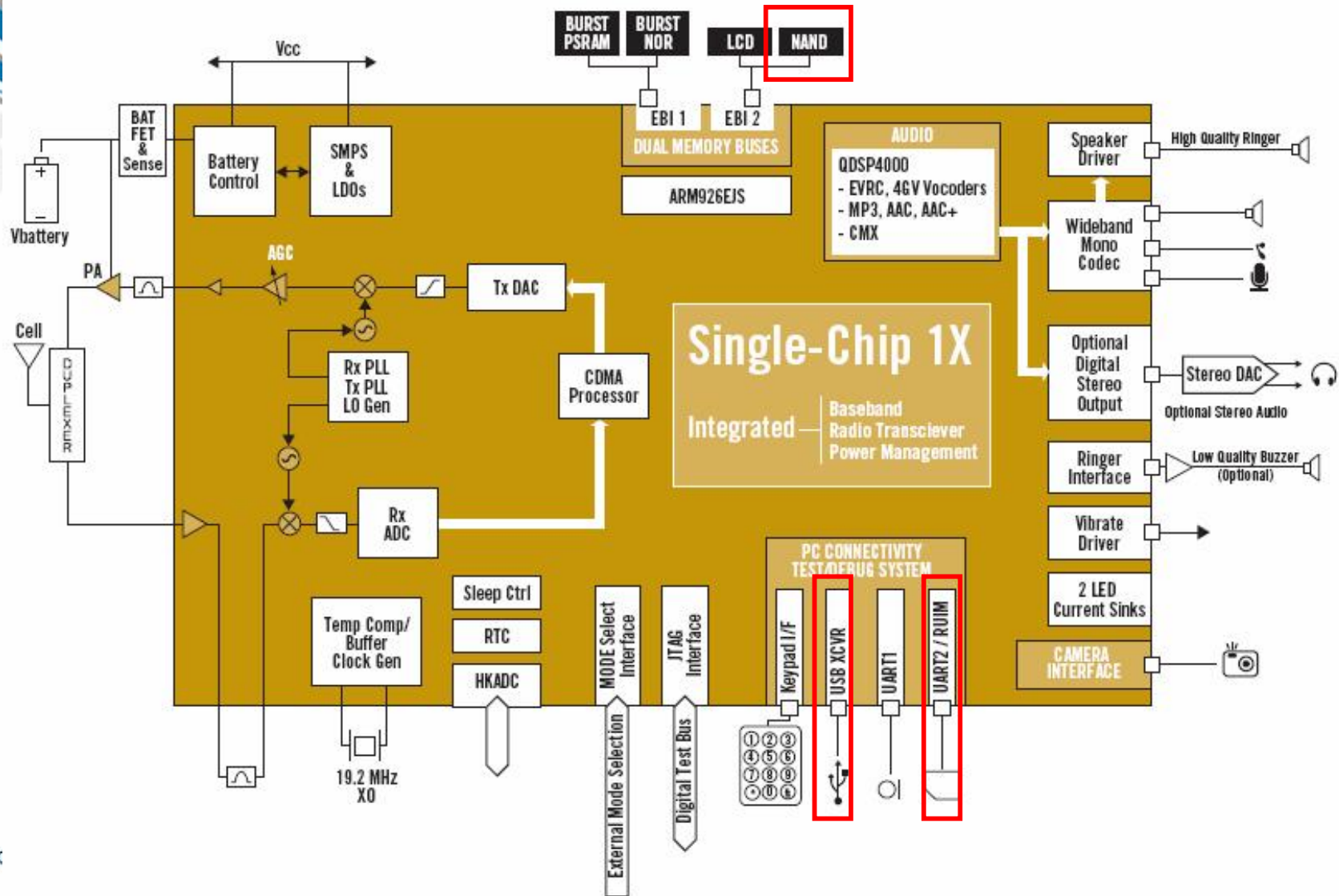
LEGEND  
■ TI Products

GENESYS  
LOGIC

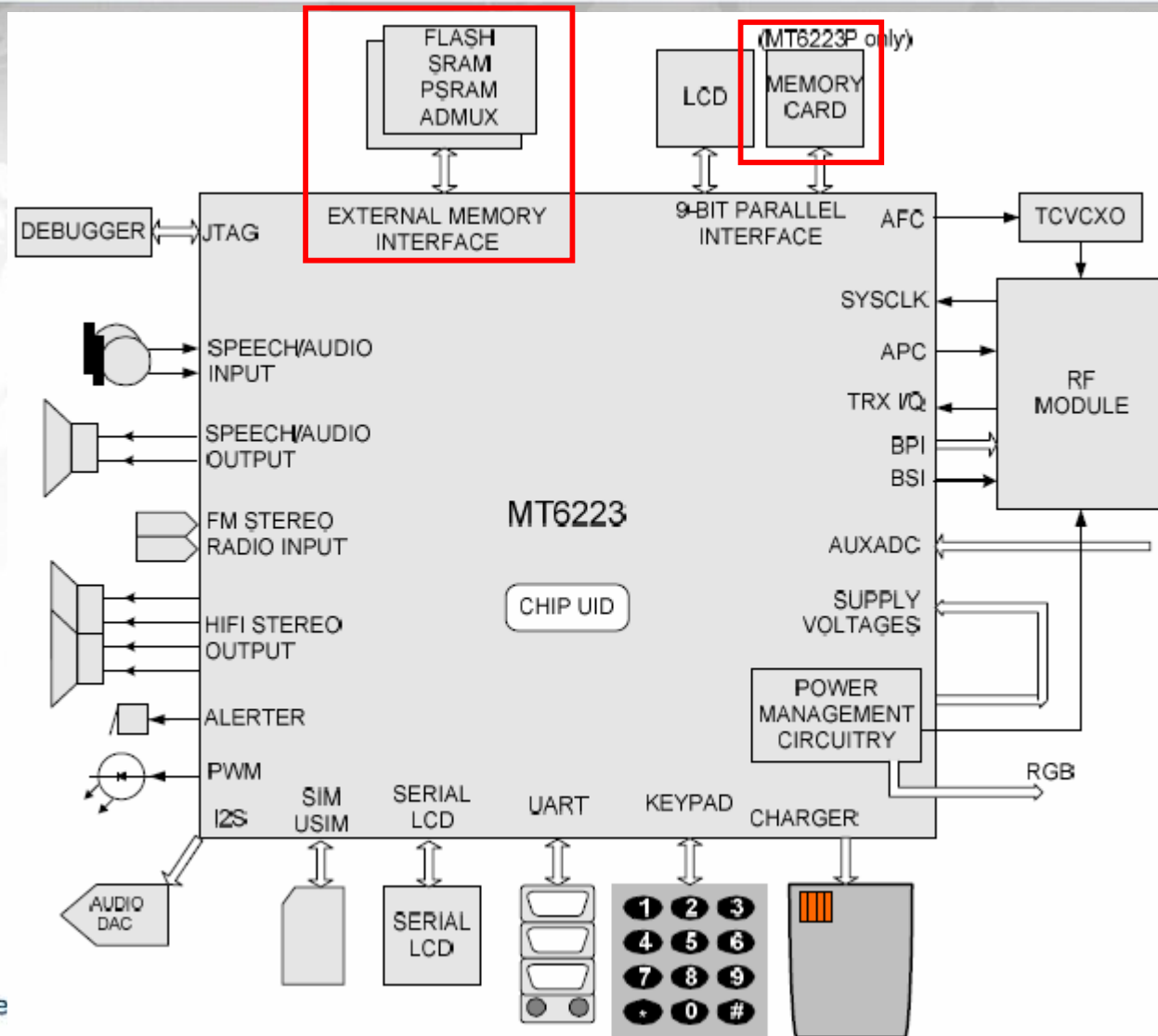
# TI TCS2310 "LoCosto" GPRS



# Qualcomm QSC60xx



# MTK MT6223

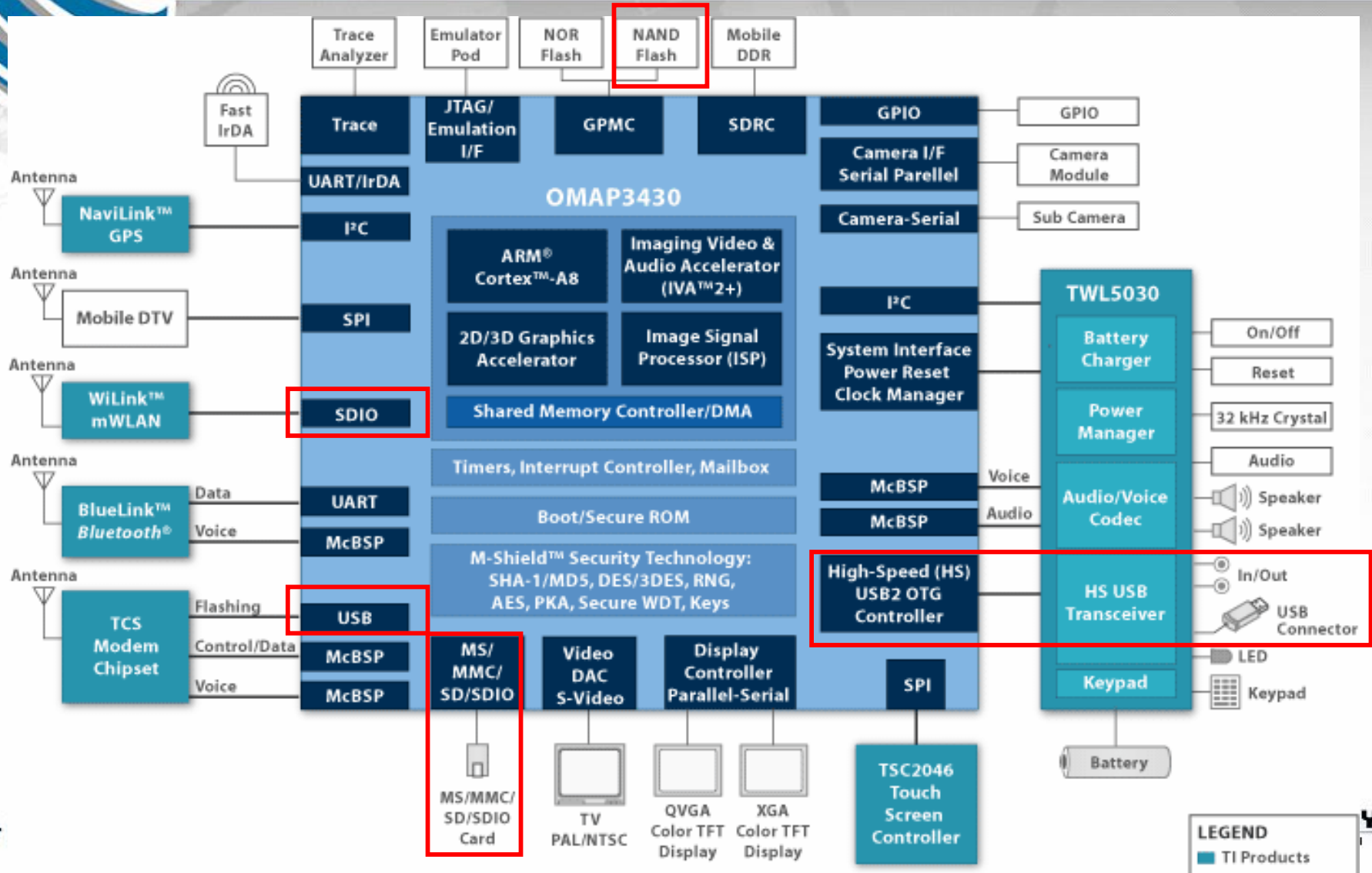


# New Baseband Integrated Solutions

Table 9: Baseband companies are releasing integrated solution

	Texas Instruments				Infineon			Broadcom	Qualcomm	NXP
	LoCosto (TCS2300/10)	LoCosto ULC (TCS 2305)	LoCosto ULC (TCS2315)	eCosto EDGE (OMAPV1035)	E-GOLDradio (ULC1)	E-GOLDradio (ULC2)	S-GOLDradio	(BCM21331)	(QSC6240)	AeroFone2
Technology	GSM/GPRS	GSM	GPRS		GSM	GSM	EDGE	EDGE	WEDGE (384kpbs)	GPRS
Bands	Dual Band	Dual Band	Quad Band		Dual Band	Dual Band	Quad Band	Quad Band	Quad Band EDGE/Tri Band UMTS	Quad Band
Process Node	90nm	65nm	65nm		130nm	130nm	130nm	65nm	65nm	130nm
Package size	NA	NA	NA	NA	9*9mm	8*8mm	NA	12*12mm	12*12mm	12*12mm
Camera	1.3MP	None	2MP		NA	None	2MP	3.2MP	2MP	VGA
Video	15fps QCIF	None	15fps QCIF	30fps QCIF	NA	None	30fps decode, 15 fps encode QCIF	30fps QVGA	15fps QCIF	None
Video codecs	NA	None	NA	H.264, H.263, WMV9, MPEG4	NA	None	NA	H.264, H.263, WMV9, MPEG4	H.264, H.263, WMV9, MPEG4	None
Apps core	ARM7	ARM7	ARM7	AMR9E	NA	NA	AMR9	AMR9E	AMR9E	ARM9E
Connectivity Interfaces	FM, Bluetooth, USB2.0, WLAN, FM, USB GPS		FM, Bluetooth, USB2.0, WLAN, GPS	FM, Bluetooth, USB2.0, WLAN, GPS, MTDV	FM, Bluetooth	NA	NA	FM, Bluetooth, USB2.0, WLAN, GPS, MTDV	FM, Bluetooth, USB2.0, WLAN, GPS, MTDV	FM, USB
PMU	External	Internal (stacked)	Internal (stacked)	External	External	Integrated	Integrated	External	Integrated	Integrated
Power	350h Standby >3.25h talk time	550h standby, 4.5h talk time	550h standby, 4.5h talk time	700h standby, 4.5h talk time	NA	NA	NA	NA	NA	NA
Footprint	NA	NA	NA	NA	<9cm <sup>2</sup>	4cm <sup>2</sup>	NA	NA	NA	6.1cm <sup>2</sup>
Component count	NA	NA	NA	NA	<100	<50	NA	NA	NA	58
Customers	15 OEMs including MOT, Amoi, Legend, TCL, Nokia	-	-	-	-	-	-	-	-	-
Expected Ramp	Late 2006	2008	2008	2008	1H 2007	1H 2007	2H 2007	2008	2008	2007

# TI High-Performance OMAP3430





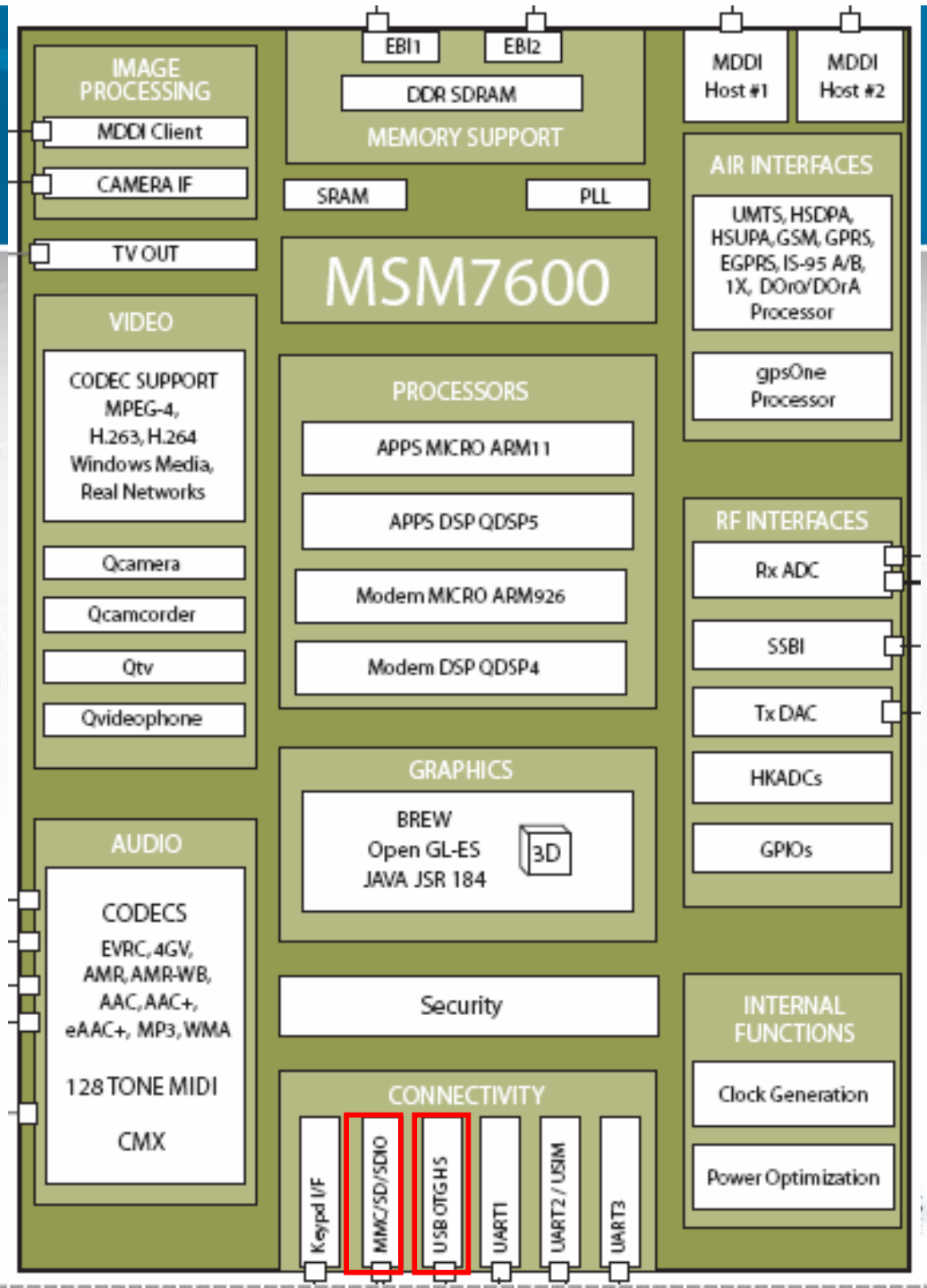
# Qualcomm MSM7600

™ MSM 8-series

§ SDIO x 3

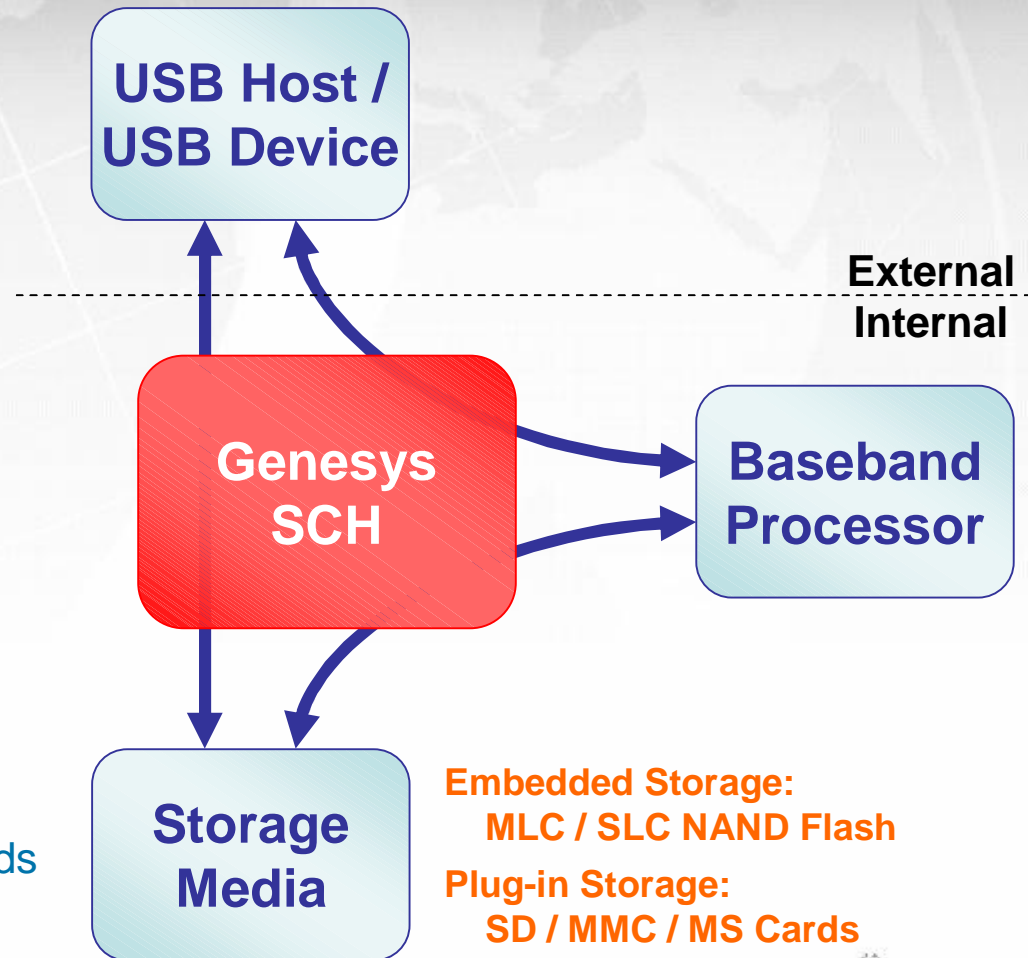
§ More than one USB OTG

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# The Trinity Communication



- ™ **Multiple Communication Paths**
- ™ USB Host ↔ Baseband Processor
- ™ USB Host ↔ NAND Flash
- ™ USB Host ↔ Memory Cards
- ™ Baseband Processor ↔ USB Device
- ™ Baseband Processor ↔ NAND Flash
- ™ Baseband Processor ↔ Memory Cards

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# To-Do List



## ™ Specifications of baseband processors

- § TI OMAP 3430, 3420, and 3410.
- § Qualcomm MSM 7600 and 8-family.
- § MTK 6223 and 6225.

## ™ More applications

- § Digital Still Camera (DSC)
- § Personal Navigation Device (PND)
- § Portable Multimedia Player (PMP)
- § ...

# Q&A



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