QUALCOMM CDMA Technologies

REDEFINING MOBILITY

QCT UMTS Product Roadmaps

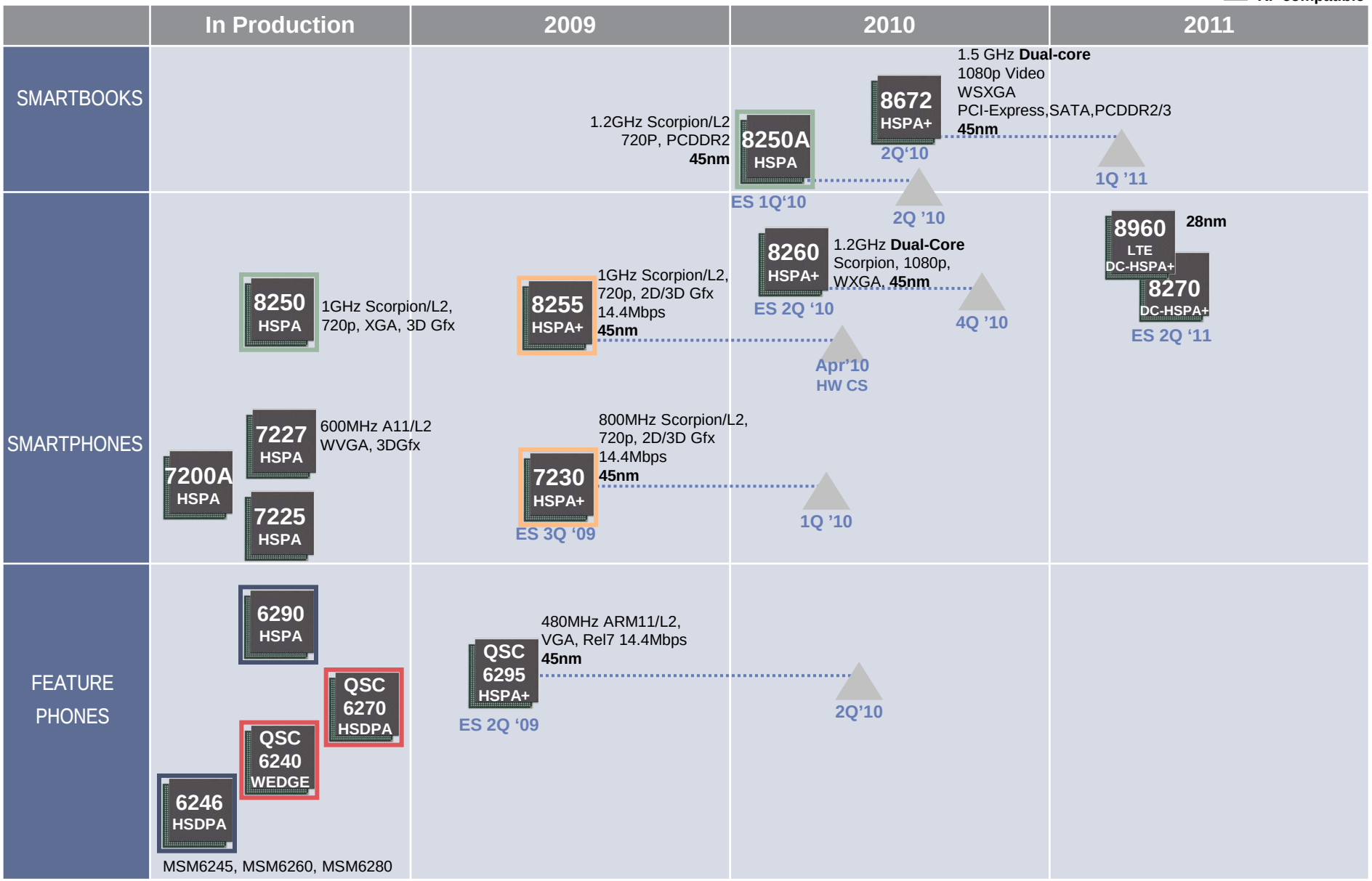
March 2010

(Disclosed Under NDA)

UMTS MSM Roadmap – NDA

ES: Eng. samples and α SW
CS: Commercial release

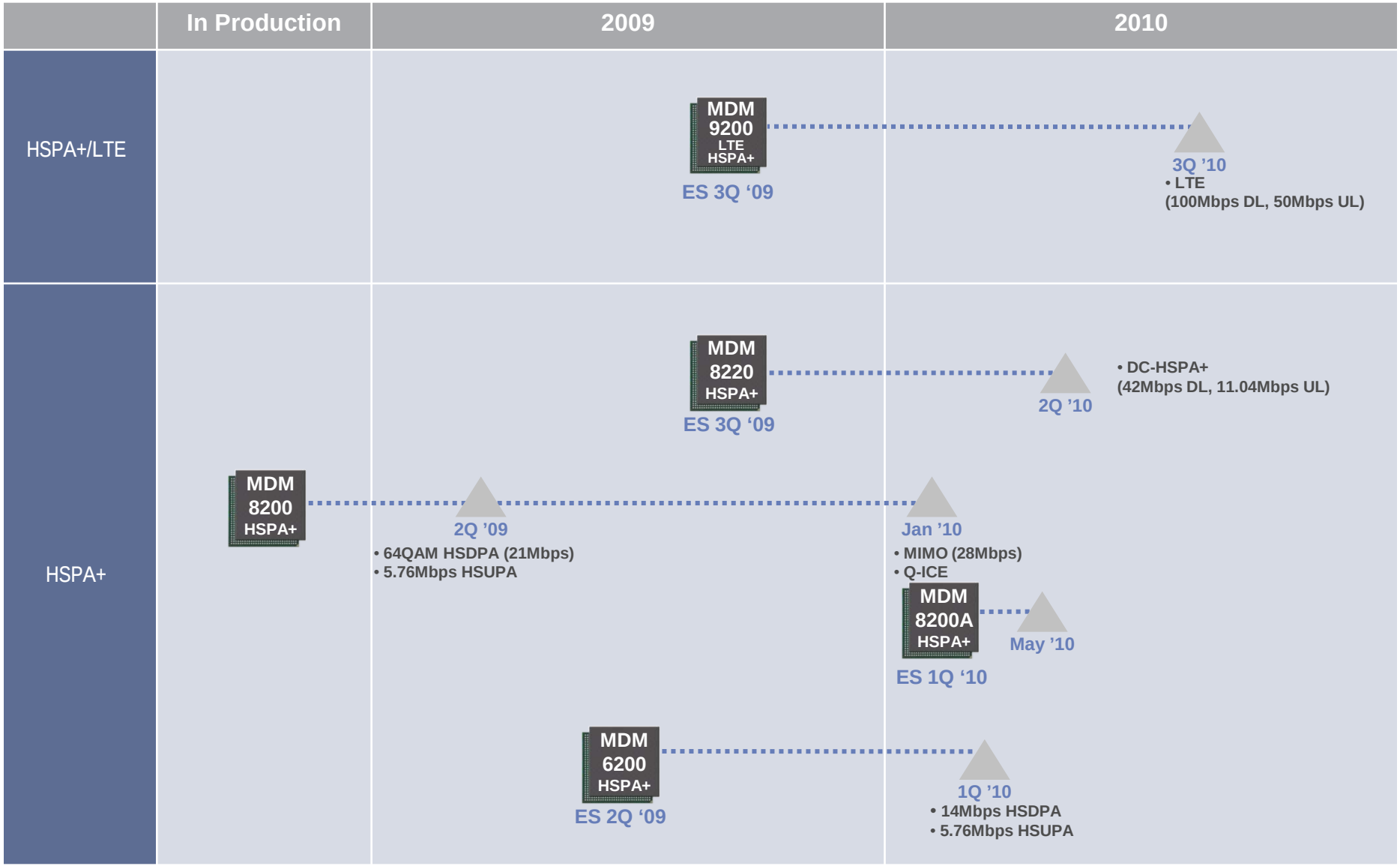
Pin, SW API & RF compatible



UMTS MDM Roadmap

ES: Eng. samples and α SW
CS: Commercial release

Pin, SW API & RF compatible



QCT UMTS Roadmap Milestones – NDA

Nothing in these materials is an offer to sell any of the components referenced herein. Certain components for use in the U.S. are available only through licensed suppliers. Some components are not available for use in the U.S.

Feature Comparison: Feature Phones

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MSM6245	MSM6246	QSC6240
Process Technology	65nm	65nm	65nm
Package	409 CSP, 14x14mm	384 NSP, 10x10mm	424 CSP, 12x12mm
Processor	ARM926EJS -- 225MHz ADSP - 100MHz	ARM926EJS -- 273.6MHz ADSP - 122.8MHz	**Enhanced:** ARM926EJS - 230MHz ADSP -- 115MHz
MODEM	WCDMA GSM / EGPRS	HSDPA GSM / EGPRS	WCDMA GSM / EGPRS
Peak Data Rates UL/DL	**WCDMA R99**: DL/UL: 384kbps	**HSDPA**: DL 3.6Mbps / UL 384kbps	**WCDMA:** DL/UL: 384kbps
Modem Enhancements	**GSM:** SAIC	**UMTS:** Equalizer, Rx Diversity **GSM:** SAIC	**UMTS:** Equalizer **GSM:** SAIC
Frequency Support	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	RTR6285+PM6653/PM6658	RTR6285+PM6653/PM6658	Integrated
LCD Support	16/18-bit QVGA (320X240)	24-bit QVGA (320X240)	24-bit QVGA (320x240)
Bluetooth	BT 1.2, BT 2.1 via external SoC over Fast UART	BT 2.1 via external SoC over Fast UART	external BT 2.0 EDR (BTS4020) external BT 2.1 EDR (BTS4021)
USB	USB 2.0 FS peripheral and host, support USB 2.0 HS via ext. SoC	USB 2.0 HS peripheral and host	USB 2.0 HS Peripheral and Host
Qtv (Video Decode)	**Playback**: 15fps QVGA (MPEG-4/H.263) 15fps QCIF (H.264/WMA-9) **Streaming:** 15fps QCIF ((MPEG-4/H.263/H.264/WMV-9)	**Playback**: 15fps QVGA (MPEG-4/H.263) 15fps QCIF (H.264/WMA-9) **Streaming:** 15fps QCIF ((MPEG-4/H.263/H.264/WMV-9)	**Playback:** 15fps QCIF (MPEG-4/H.263/H.264/WMV-9) **Streaming:** 15fps QCIF (MPEG-4/H.263/H.264/WMV-9)
Qcamcorder (Offline Video Encoding)	7.5 fps @ QVGA (MPEG-4) 15 fps @ QCIF (H.263)	7.5 fps @ QVGA (MPEG-4) 15 fps @ QCIF (H.263)	15 fps @ QCIF (MPEG-4 / H.263)
Qcamera	2M Pixel	3M Pixel	2M Pixel YUV, 3M Pixel Bayer
Audio	72-Voice Polyphony Qconcert	72-Voice Polyphony Qconcert	72-Voice Polyphony Qconcert
Graphics	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)
GPS	Not supported	**gpsOne Gen 6w** Standalone, Assisted, gpsOneXTRA	**gpsOneGen 7** Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w
Security and DRM	OMA DRM 2.1, MSFT WMDRM 10 w/MTP, SecureMSM v.2	OMA DRM 2.1, MSFT WMDRM 10 w/MTP, SecureMSM v.2	OMA DRM 2.1, MSFT WMDRM 10 w/MTP, SecureMSMv.2

Feature Comparison: Feature Phones

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MSM6260	QSC6270	MSM6280/81
Process Technology	65nm	65nm	90nm
Package	409 CSP, 14x14mm 432 NSP, 11x11mm	424 CSP, 12x12mm	432 NSP, 11x11mm 409 CSP, 14x14mm
Processor	ARM926EJS -- 225MHz ADSP - 100MHz	ARM926EJS - 184MHz ADSP -- 92MHz **Enhanced:** ARM926EJS - 230MHz ADSP -- 115MHz	ARM926EJS-274MHz ADSP - 100MHz
MODEM	HSDPA GSM / EGPRS	HSDPA GSM / EGPRS	HSDP GSM/EGPRS
Peak Data Rates UL/DL	**HSDPA:** DL 3.6Mbps / UL 384kbps	**HSPDA:** DL 3.6Mbps / UL 384kbps	**HSDPA:** DL 7.2Mbps / UL 384kbps
Modem Enhancements	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC	**UMTS:** Equalizer **GSM:** SAIC	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC
Frequency Support	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	RTR6285+PM6653/PM6658	Integrated	RTR6285 + PM6650
LCD Support	24-bit QVGA (320X240)	24-bit WQVGA (400x240)	18-bit QVGA (320X240)
Bluetooth	BT 1.2 / BT 2.0 (non EDR)	external BT 2.0 EDR (BTS4020) external BT 2.1 EDR (BTS4021)	BT 1.2 integrated, BT 2.0 via external SoC
USB	USB 2.0 FS peripheral and host, support USB 2.0 HS via external SoC	USB 2.0 HS Peripheral and Host	USB2.0 FS Peripheral or Host, USB HS peripheral via ext SoC.
Qtv (Video Decode)	**Playback**: 15fps QVGA (MPEG-4/H.263) 15fps QCIF (H.264/WMA-9) **Streaming:** 15fps QCIF ((MPEG-4/H.263/H.264/WMV-9)	**Playback:** 30fps QVGA (MPEG-4/H.263/H.264) 15fps QVGA (WMV-9) **Streaming:** 15fps QVGA (MPEG-4/H.263/H.264) 15fps QCIF (WMV-9)	**Playback**: 30fps QVGA (MPEG-4/H.263/H.264) 15fps QVGA (WMV-9) **Streaming:** 15fps QVGA (MPEG-4/H.263/H.264) 15fps QCIF (lWMV-9)
Qcamcorder (Offline Video Encoding)	7.5fps QVGA (MPEG-4) 15fps QCIF (H.263)	15fps QVGA (MPEG-4/H.263/H.264)	15fps QVGA (MPEG-4 / H.263) (H.264 MSM6280 only)
Qcamera	3M Pixel	5M Pixel	4M Pixel
Audio	72-Voice Polyphony Qconcert	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE Noise Cancellation (with ext. SADC)	72-Voice Polyphony Qconcert Enhanced Echo Cancellation
Graphics	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)	Software rendered 2D support • Brew 2D • SVG TINY 1.2 software (Scalable Vector Graphics)	Hardware (QVGA) OpenGL ES 1.1, OpenVG, SVG - 250K triangles/sec peak - 7M pixels/sec peak - BREW 2D
GPS	**gpsOne Gen 6w** Standalone, Assisted, gpsOneXTRA	**gpsOneGen 7** Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w	**gpsOne Gen 6w** Standalone, Assisted, gpsOneXTRA
Security and DRM	SecureMSM V2, OMA DRM v2.1	SecureMSM V2, OMA DRM 1.0/2.1, WMDRM 10	SecureMSM v2 OMA DRM 2.1, MSFT WMDRM 10 w/MTP

Feature Comparison: Feature Phones

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MSM6290	QSC6295
Process Technology	65nm	45nm
Package	384 NSP, 10x10mm	669NSP, 12.6x12.6mm
Processor	ARM926EJS-297.6MHz ADSP - 148.8MHz	ARM11w/L2-480MHz ADSP - 160MHz
MODEM	HSPA GSM/EGPRS	HSPA+ GSM/EGPRS
Peak Data Rates UL/DL	**HSPA:** DL 7.2Mbps / UL 5.76Mbps	**HSPA+**: DL 14Mbps / UL 5.76Mbps
Modem Enhancements	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC	**UMTS**: SCH-IC, Rx Diversity with Equalizer (Type 3), Enhanced F-DPCH, DTX, DRX **GSM:** Improved SAIC,
Frequency Support	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/900/1500/1700/1800/ AWS1700/2100 **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	RTR6285 + PM6653/PM6658	Integrated RF + PM8028
LCD Support	24-bit WQVGA (400X240)	24-bit, VGA (640x480)
Bluetooth	BT 2.1 via external SoC over fast UART	integrated BT 2.1 + EDR
USB	USB 2.0 High Speed peripheral or host (PHY integrated in MSM)	USB2.0 HS Peripheral and Host
Qtv (Video Decode)	**Playback**: 30fps QVGA (MPEG-4/H.263/H.264) 15fps QVGA (WMV-9) **Streaming:** 15fps QVGA (MPEG-4/H.263/H.264) 15fps QCIF (WMV-9)	**Playback:** 30fps HVGA (MPEG-4/H.264/H.263) 15fps QVGA (WMV-9) **Streaming:** 15fps WQVGA (MPEG-4/H.263/H.264) 15fps QVGA (WMV-9)
Qcamcorder (Offline Video Encoding)	15fps QVGA	30fps WQVGA, 384 kbps
Qcamera	5M Pixel	8M Pixel
Audio	72-Voice Polyphony Qconcert Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)
Graphics	Hardware (WQVGA) OpenGL ES 1.1, OpenVG, SVG - 600K traingles/sec peak - 90M pixels/sec peak - BREW 2D	Hardware (WQVGA) OpenGL ES 1.1, OpenVG, SVG - 600K traingles/sec peak - 90M pixels/sec peak - BREW 2D
GPS	**gpsOne Gen 6w** Standalone, Assisted, gpsOneXTRA	**gpsOne Gen 8 with GNSS** Standalone, Assisted, gpsOneXTRA, 2db improvement over Gen 7
Security and DRM	SecureMSM v2 OMA DRM 2.1, MSFT WMDRM 10 w/MTP	SecureMSM v2 plus Crypto Engine V3 OMA DRM 1.0/2.1, WMDRM 10

Feature Comparison: Smart Phones

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MSM7200A	MSM7225	MSM7227
Process Technology	65nm	65nm	65nm
Package	543 CSP, 15x15mm	457 NSP, 11x11mm	560 NSP, 12x12mm
Processor	ARM11-528MHz ARM926-320MHz ADSP QDSP5-320MHz mDSP QDSP4-125MHz	ARM11-528MHz ARM926-320MHz ADSP QDSP5-320MHz mDSP QDSP4-128MHz	ARM11-600MHz ARM926-400MHz ADSP QDSP5-320MHz mDSP QDSP4-128MHz
MODEM	HSPA GSM/EGPRS	HSPA GSM/EGPRS	HSPA GSM/EGPRS
Peak Data Rates UL/DL	**HSPA:** DL 7.2Mbps / UL 5.76Mbps	**HSPA:** DL 7.2Mbps / UL 5.76Mbps	**HSPA:** DL 7.2Mbps / UL 5.76Mbps
Modem Enhancements	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC
Frequency Support	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900, 1800, 1900)	**UMTS**: 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS**: 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	RTR6285 + PM7540	RTR6285 + PM7540	RTR6285 + PM7540
LCD Support	16/18/24-bit, WVGA (800x480)	16/18/24-bit VGA (640X480)	16/18/24-bit, FWVGA (864x480)
Bluetooth	external BT2.1 EDR	external BT2.1 EDR	External BT2.1 EDR (BTS4025)
USB	USB2.0 HS Peripheral or Host (MAC only)	USB2.0 HS Peripheral or Host	USB2.0 HS Peripheral or Host

Feature Comparison: Smart Phones (cont.)

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MSM7200A	MSM7225	MSM7227
Qtv (Video Decode)	**Playback:** 30fps VGA (MPEG-4 / H.263 / H.264) 30fps QVGA (WMV-9)) **Streaming:** 15-30fps VGA (MPEG-4 / H.263 / H.264) 15-30fps QVGA (WMV-9)	**Playback**: 15fps VGA / 30fps WQVGA (MPEG-4 / H.263 / H.264) 30fps QVGA (WMV-9) **Streaming:** 15-30fps WQVGA (MPEG-4 / H.263 / H.264) 15-30fps QVGA (WMV-9)	**Playback**: 30fps WVGA (MPEG-4/H.263 / H.264 / DivX) 15fps VGA (WMV-9) 30fps D1 (Sorenson Spark) 30fps HVGA (On2 VP6) **Streaming:** 15fps VGA (MPEG-4/H.263 / H.264 / WMV-9)
Qcamcorder (Offline Video Encoding)	7200A: 30fps VGA (MP4 / H.263) 15fps VGA (H.264) 7201A: 24fps QVGA (MP4 / H.263)	24fps QVGA (MP4 / H.263) (H.264 encoding not supported)	30fps WVGA (MP4, H.263) 15fps WVGA (H.264)
Qcamera	8M Pixel	5M Pixel	8M Pixel
Audio	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)
Graphics	Max LCD: WVGA - Triangles/s: 4M peak - 3D Pixels/s: 532M peak APIs: OpenGL ES 1.0+, D3DM, Direct Draw, OpenVG1.1, SVG Tiny 1.2, BREW 2D	Software rendered 2D support BREW 2D SVG Tiny 1.2 software	Max LCD: WVGA - Triangles/s: 32M peak - 3D Pixels/s: 1.9B peak - Instructions/s: 240M APIs: OpenGL ES 1.1, OpenGL ES 2.0, D3DM, Direct Draw, OpenVG1.1, SVG Tiny 1.2, BREW 2D
GPS	**gpsOneGen 7** Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w	**gpsOneGen 7** Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w	**gpsOne Gen 7** Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w
Security and DRM	OMA DRM 1.0/2.1 SecureMSM v3 Microsoft WMDRM 10	OMA DRM 1.0/2.1 SecureMSM v3 Microsoft WMDRM 10	OMA DRM 1.0/2.1 SecureMSM v3 Microsoft WMDRM 10

Feature Comparison: Smart Phones (cont.)

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MSM7230	QSD8250	MSM8255	MSM8260
Process Technology	45nm	65nm	45nm	45nm
Package	904 NSP PoP, 14x14mm PoP1 = Dual-channel LPDDR2 PoP2 = LPDDR1 + Flash memory	603 CSP, 15x15mm	904 NSP PoP, 14x14mm PoP Dual-channel LPDDR2	976 NSP 14x14mm
Processor	Scorpion – 800MHz ARM11 + L2 – 480MHz ADSP QDSP5 - 256MHz mDSP QDSP4 – 147MHz	Scorpion- 1 GHz ARM926-266MHz ADSP QDSP6-600MHz mDSP-100MHz	Scorpion – 1GHz ARM11 + L2 – 480MHz ADSP QDSP5 - 256MHz mDSP QDSP4 – 147MHz	Dual Core Scorpion – 1.2GHz/1.2GHz (Apps) QDSP6V3 – 400MHz (Apps) ARM11 + L2 – 490MHz (Modem) QDSP4 – 147MHz (Modem)
MODEM	HSPA+ GSM/EGPRS	HSPA GSM/GPRS/EDGE	HSPA+ GSM/EGPRS	HSPA+ GSM/GPRS/EDGE
Peak Data Rates UL/DL	**HSPA+:** DL 14Mbps / UL 5.76Mbps	**HSPA**: DL 7.2Mbps / UL 5.76Mbps	**HSPA+:** DL 14Mbps / UL 5.76Mbps	**HSPA+:** DL 14Mbps / UL 5.76Mbps
Modem Enhancements	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC	**UMTS:** Equalizer, Rx Diversity **GSM**: SAIC
Frequency Support	**UMTS**: 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM**: QB EGPRS (850, 900, 1800, 1900)	**UMTS**: 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS**: 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900, 1800, 1900)
RF+PMIC Chipset	QTR8600 + PM8058	RTR6285 + PM7540	QTR8600 + PM8058	QTR8615 (RxD) + PM8058 + PM8901 QTR9215 (no RxD)+ PM8058 + PM8901
LCD Support	16/18/24-bit HXGA (1024x480)	16/18/24-bit, WXGA (1280x800)	16/18/24-bit HXGA (1024x480)	WXGA (1280x800)
Bluetooth	BT 3.0 + HS, low energy, FM Rx/Tx(integrated in QTR8200)	external BT2.0 EDR on WM6.1 external BT2.1 EDR on WM7.x	BT 3.0 + HS, low energy, FM Rx/Tx(integrated in QTR8200)	BT 3.0 + HS, low energy, FM Rx/Tx (integrated in WCN2243)
USB	USB2.0 HS Peripheral or Host	USB 2.0 All Speed Peripheral or Host	USB2.0 HS Peripheral or Host	USB2.0 High Speed OTG (480Mbps)

Feature Comparison: Smart Phones (cont.)

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MSM7230	QSD8250	MSM8255	MSM8260
Qtv (Video Decode)	**Playback**: 30fps 720p (MPEG-4 / MPEG-2 / H.264 / H.263 / VC-1/ DivX) 30fps D1 (DivX 3.11 / Sorenson Spark) 30fps HVGA (On2 VP6) **Streaming:** 30fps 720p (MPEG-4 / MPEG-2 / H.264 / VC-1) 30fps FWVGA (H.263)	**Playback:** 30fps 720p (MPEG-4 / H.264 / H.263 / VC-1) 30fps D1 (Sorenson Spark / On2 VP6) **Streaming:** 30fps WVGA (MPEG-4 / H.263 / H.264 / VC-1)	**Playback**: 30fps 720p (MPEG-4 / MPEG-2 / H.264 / H.263 / VC-1/ DivX) 30fps D1 (DivX 3.11 / Sorenson Spark) 30fps HVGA (On2 VP6) **Streaming:** 30fps 720p (MPEG-4 / MPEG-2 / H.264 / VC-1) 30fps FWVGA (H.263)	**Playback:** 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / H.263 / DivX / VC-1 / WMV-9) 30fps D1 (Sorenson Spark, On2 VP6) **Streaming:** 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / DivX / VC-1 / WMV-9) 30fps D1 (H.263 / VP6 / Spark)
Qcamcorder (Offline Video Encoding)	30fps 720p (MP4, H.264, H.263)	30fps 720p (MPEG-4) 30fps WVGA (H.263 / H.264)	30fps 720p (MP4, H.264, H.263)	30fps 1080p (MP4/H.263/H.264)
Qcamera	12M Pixel	12M Pixel	12M Pixel	16M Pixel
Audio	128-Voice Polyphony QconcertPlus, Dolby 5.1 Surround, Low Power Audio Core Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus, Dolby 5.1 Surround, Low Power Audio Core Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony QconcertPlus, Dolby 5.1 Surround, Low Power Audio Core Enhanced Echo Cancellation FLUENCE (Noise cancellation)
Graphics	Max LCD: FWVGA - Triangles/s: 32M peak - 3D Pixels/s: 1.9B peak - Instructions/s: 960M - Dedicated OVG Core APIs:OpenGL ES 1.1, OpenGL ES 2.0, Direct Draw, OpenVG1.1, SVG Tiny 1.2, BREW 2D	Max LCD: WXGA - Triangles/s: 22M peak - 3D Pixels/s: 1.3B peak - Instructions/s: 166M APIs: OpenGL ES 1.1,OpenGL ES 2.0, D3DM, Direct Draw, OpenVG1.1, SVG Tiny 1.2, BREW 2D	Max LCD: FWVGA - Triangles/s: 32M peak - 3D Pixels/s: 1.9B peak - Instructions/s: 960M - Dedicated OVG Core APIs:OpenGL ES 1.1, OpenGL ES 2.0, Direct Draw, OpenVG1.1, SVG Tiny 1.2, BREW 2D	Max LCD: FWVGA - Triangles/s: 32M peak - 3D Pixels/s: 1.9B peak - Instructions/s: 960M - Dedicated OVG Core APIs: OpenGL ES 1.1, OpenGL ES 2.0, Direct Draw, OpenVG1.1, SVG Tiny 1.2, BREW 2D
GPS	**gpsOneGen 8 with GNSS** Standalone, Assisted, gpsOneXTRA, 2dB improvement vs. Gen 7	**gpsOneGen 7** Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w	**gpsOneGen 8 with GNSS** Standalone, Assisted, gpsOneXTRA, 2dB improvement vs. Gen 7	**gpsOne Gen 8 with GNSS** ,Standalone Assisted, gpsOneXTRA, 2db improvement vs Gen 7
Security and DRM	OMA DRM 1.0/2.1 SecureMSM v4 with Trustzone Microsoft WMDRM 10	SecureMSM v4 with TrustZone Macrovision	OMA DRM 1.0/2.1 SecureMSM v4 with Trustzone Microsoft WMDRM 10	SecureMSM v4 with TrustZone Microsoft WMDRM 10 / HDCP OEM Programmable OTP Storage

Feature Comparison: Data Modem

Note: Not all features may be available upon 1st commercial software release.

FEATURES	MDM6200	MDM8200	MDM8200A	MDM8220	MDM9200
Process Technology	45nm	65nm	45nm	45nm	45nm
Package	486 NSP, 9.8x12.2mm	608 CSP, 14x14 (0.5mm pitch)	408 NSP, 10x10mm	504 CSP, 13x13mm	504 CSP, 13x13mm
Processor	ARM11w/L2-390MHz ADSP - 130MHz	ARM926-256MHz Dual QDSP6-450MHz	ARM926-256MHz Dual QDSP6-450MHz	ARM926-256MHz Dual QDSP6-600MHz	ARM926-256MHz QDSP6-600MHz
MODEM	HSPA+ GSM/EGPRS	HSPA+ GSM/EGPRS	HSPA+ GSM/EGPRS	Release 8 DC-HSPA+, GSM/EGPRS	Release 8 LTE Release 8 DC-HSPA+ GSM/EGPRS
Peak Data Rates UL/DL	**HSPA+:** DL 14Mbps / UL 5.76Mbps	**HSPA+:** DL 28Mbps / UL 5.76 Mbps	**HSPA+:** DL 28Mbps / UL 5.76 Mbps	**DC-HSPA+**: DL 42Mbps / UL 11 Mbps	**DC-HSPA+:** DL 42Mbps / UL 11Mbps **LTE FDD:** DL 100Mbps / UL 50 Mbps (Cat 3) **LTE TDD**: DL 68Mbps / UL 17 Mbps (Cat 3)
Modem Enhancements	**UMTS**: SCH-IC, Rx Diversity with Equalizer (Type 3), Enhanced F-DPCH, DTX, DRX **GSM:** Improved SAIC	**UMTS:** RxD, EQ, SCH-IC, Q-ICE, 2x2 DL MIMO **GSM:** SAIC	**UMTS:** RxD, EQ, SCH-IC, Q-ICE, 2x2 DL MIMO **GSM:** SAIC	**UMTS**: RxD, EQ, SCH-IC, Q-ICE, 2x2 DL MIMO **GSM:** SAIC	**UMTS:** RxD, EQ, SCH-IC, Q-ICE, 2x2 DL MIMO **LTE:** 2x2 DL SU-MIMO with SIC **GSM:** SAIC
Frequency Support	**UMTS:** 800/900/1500/1700/1800/ AWS1700/2100 **GSM:** QB EGPRS (850, 900,1800, 1900)\	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 800/850/900/1700/1900/2100/AWS **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS:** 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1700 (AWS), 1800 MHz, 1900 MHz, 2100 MHz **GSM:** QB EGPRS (850, 900,1800, 1900)	**UMTS**: 3GPP: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1700 MHz, 1800 MHz, 1900 MHz, 2100 MHz, 2300MHz, 2600 MHz **GSM:** QB EGPRS (850, 900,1800, 1900)
RF+PMIC Chipset	MDM (int. RF)+PM8028	RTR6285+PM7540	RTR6285+PM8028	RTR8600 + PM8028	RTR8600 + PM8028
USB	USB2.0 HS OTG	USB 2.0 All Speed Peripheral or Host	USB 2.0 HS Peripheral or Host	USB 2.0 HS Peripheral or Host	USB 2.0 All Speed Peripheral or Host
	gpsOne Gen 8 with GNSS Standalone, Assisted, gpsOneXTRA, 2db improvement vs Gen 7	N/A	**gpsOneGen 7** Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w	**gpsOne Gen 8 with GNSS** Standalone Assisted, gpsOneXTRA, 2db improvement vs Gen 7	**gpsOne Gen 8 with GNSS** Standalone Assisted, gpsOneXTRA, 2db improvement vs Gen 7

Feature Comparison – Smartbooks

	QSD8250A	QSD8672
Process Technology	45nm	45nm
Package	603 CSP, 15x15mm	NSP, 15x15mm
Processor	Scorpion- 1/1.3 GHz ARM926-266MHz ADSP QDSP6-600MHz	Dual Core Scorpion ARM v7 –1.2/1.5GHz, QDSP6 -600MHz (Apps)
MODEM	GSM/EGPRS HSPA	1X Rev. A, 1xEV-DO Rev. A/B GSM/GPRS/EDGE HSPA+
Peak Data Rates UL/DL	HSPA: DL 7.2 Mbps / UL 5.76 Mbps	1x: DL / UL 307.2 kbps DO: DL 14.7 Mbps / UL 5.4 Mbps HSPA+: DL 14.4 Mbps / UL 5.76 Mbps
Modem Enhancements	UMTS: Equalizer, Rx Diversity GSM: SAIC	CDMA: QLIC, 4GV, Equalizer, Rx Diversity UMTS: Equalizer, Rx Diversity GSM: SAIC
Frequency Support	UMTS: 800MHz/850MHz/900MHz/1700MHz/1900MHz/2100MHz/AWS GSM: Quad-GSM (850, 900, 1800, 1900)	CDMA: 700 MHz, 800MHz(Cell&JCDMA), 1700MHz(KPCS), 1900MHz(PCS+Block G), 1700MHz/2100MHz (AWS), 2100MHz (IMT) UMTS: 800/850/900/1700/1900/2100/AWS GSM: QB EGPRS (850, 900, 1800, 1900)
RF+PMIC Chipset	RTR6285 + PM7540	QTR8600 + PM8058
Memory	x32, 183MHz, LP-DDR & 200MHz PCDDR2	Dual x32, 266MHz LPDDR2, 333MHz PCDDR3
LCD Support	XGA(1024x768), WXGA (1280x800)	WSXGA (1440x900)
DSUB-15 (ext analog)	WXGA with ext logic IC	SXGA (1280x1024)
HDMI	1280x720p via external SoC	1920x1080p
MDDI support	Yes	Yes
Bluetooth	BT 2.0 EDR (ext)	BT3.0/2.1 EDR, FM Rx/Tx
USB	USB2.0 High Speed OTG (480Mbps)	2HS (OTG), 1FS
HD interface	CE-ATA	SATA 1.5

Specifications subject to change without notice

Feature Comparison – Smartbooks (cont.)

(continued)	QSD8250A	MSM8672
Qtv (Video Decode)	Playback: 30fps 720p (MPEG-4 / H.264 / VC-1) 30fps WVGA (H.263) Streaming: 30fps WVGA (MPEG-4 / H.263 / H.264 / VC-1)	Playback: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / H.263 / DivX / VC-1) Streaming: 30fps 1080p (MPEG-4 / MPEG-2 / H.264 / H.263 / DivX / VC-1)
Qcamcorder (Offline Video Encoding)	30fps 720p	30fps @1080p MP4/H.264/H.263
Qvideophone (VT)	15fps QCIF scaled to WVGA	15fps CIF scaled to WVGA
Qcamera	12M Pixel	16M Pixel Support 1080p
Audio	128-Voice Polyphony QconcertPlus Enhanced Echo Cancellation FLUENCE (Noise cancellation)	128-Voice Polyphony Enhanced Echo Cancellation FLUENCE Enhanced Voice Active Noise Cancellation (ANC)
Graphics	Max LCD: WXGA - Triangles/s: 27M peak - 3D Pixels/s: 1.3B peak - Instructions/s: 166M APIs: OpenGL ES 1.1,OpenGL ES 2.0, D3DM, Direct Draw, OpenVG1.1, SVG Tiny 1.2, BREW 2D	Max LCD: WSXGA - Triangles/s: 88M peak - 3D Pixels/s: 5.3B peak - Instructions/s: 2.6B - Dedicated OVG Core APIs: OpenGL ES 1.1, OpenGL ES 2.0, Direct Draw, OpenVG1.1, SVG Tiny 1.2
GPS	gpsOneGen 7 Standalone, Assisted, gpsOneXTRA, 2dB sens. imprv. vs. Gen 6w	gpsOne Gen 8 with GNSS Standalone, Assisted, gpsOneXTRA, 2db improvement vs Gen 7
Security and DRM	SecureMSM v4 with TrustZone Macrovision	OMA DRM v2.1

Specifications subject to change without notice

UMTS MSM/QSC/QSD Variants

Family	Variant	ES	CS	Description
QSC6270	-0 (AA)	Production		ARM9 at 184MHz; ADSP at 92MHz
	-0	Production		Enhanced: ARM9 at 230MHz; ADSP at 115MHz
QSC6295	-0	Jun'09	May'10	Typical configuration
	-2	Jun'09	May'10	Japanese PDC support
MSM7200A	-0	Production		256Mbit DDR ISM
	-4	Production		512Mbit DDR ISM
MSM7201A	-0	Production		256Mbit DDR ISM, no CPRM, no TE
	-4	Production		512Mbit DDR ISM, no CPRM, no TE
MSM7225	-0	Production		WEDGE, HSPA
	-1		4Q'09	WEDGE, HSDPA
ESM7225	-0	Production		EDGE
MSM7230	-0	Sept'09	Mar'10	PoP option1 = Dual-channel LPDDR2; without Macrovision
	-1	Jul'09	Mar'10	PoP option2 = LPDDR1+ Flash memory; without Macrovision
	-2		2Q'10	PoP option1 = Dual-channel LPDDR2; with Macrovision
	-3		2Q'10	PoP option2 = LPDDR1+ Flash memory; with Macrovision
MSM8255	-0		Apr'10	PoP option1 = Dual-channel LPDDR2; without Macrovision
QSD8250	-0	Production		512Mbit DDR ISM, no CPRM, no Macrovision, 1GHz
	-0 (AA)	Production		512Mbit DDR ISM, no CPRM, no Macrovision, 768MHz
	-1	Production		512Mbit DDR ISM, no CPRM, with Macrovision, 1GHz
	-0 (AA)	Production		512Mbit DDR ISM, no CPRM, with Macrovision, 768MHz

Not all variants will be adopted by customers

QCT UMTS Packaging Roadmap

Pin Ct/Package Size MM Height MM Pitch MM	RoHS Compliant	409 CSP 14x14 1.2 0.5	543 CSP 15x15 1.4 0.5	432 NSP 11x11 1.05 0.4	384 NSP 10x10 1.05 0.4	409 PCSP 14x14 1.05* 0.5	456 NSP 11x11 1.05 0.4	424 CSP 12x12 1.05 0.5	669 NSP 12.6x12.6 1.05 0.4	976 NSP 14x14 1.4 0.4	603 CSP 15x15 1.4 0.5	560 NSP 12x12 1.05 0.4	408 NSP 10x10 1.05 0.4	904 PNSP 14x14 1.4* 0.4	504 CSP 13x13 1.32 0.5	486 NSP 9.8x12 1.05 0.4
MSM6245	✓	Prod														
MSM6260	✓	Prod		Prod		Prod										
MSM6280/1	✓	Prod		Prod												
MSM7200/1	✓		Prod													
MSM6246	✓				Prod											
MSM6290	✓				Prod											
MSM7200A/1A	✓		Prod													
MSM7225	✓						Prod									
QSC6240/70	✓							Prod								
MSM7230	✓													ES 3Q'09		
MSM8255	✓													CS 2Q'10		
QSD8250	✓										Prod					
QSC6295	✓								ES 2Q'09							
MSM7227	✓											Prod				
MSM8260	✓									ES2Q'10						
MDM8200	✓												Prod			
MDM8200A	✓												ES 1Q'10			
MDM8220	✓														ES 3Q'09	
MDM9200	✓														ES 3Q'09	
MDM6200	✓															ES 2Q'09

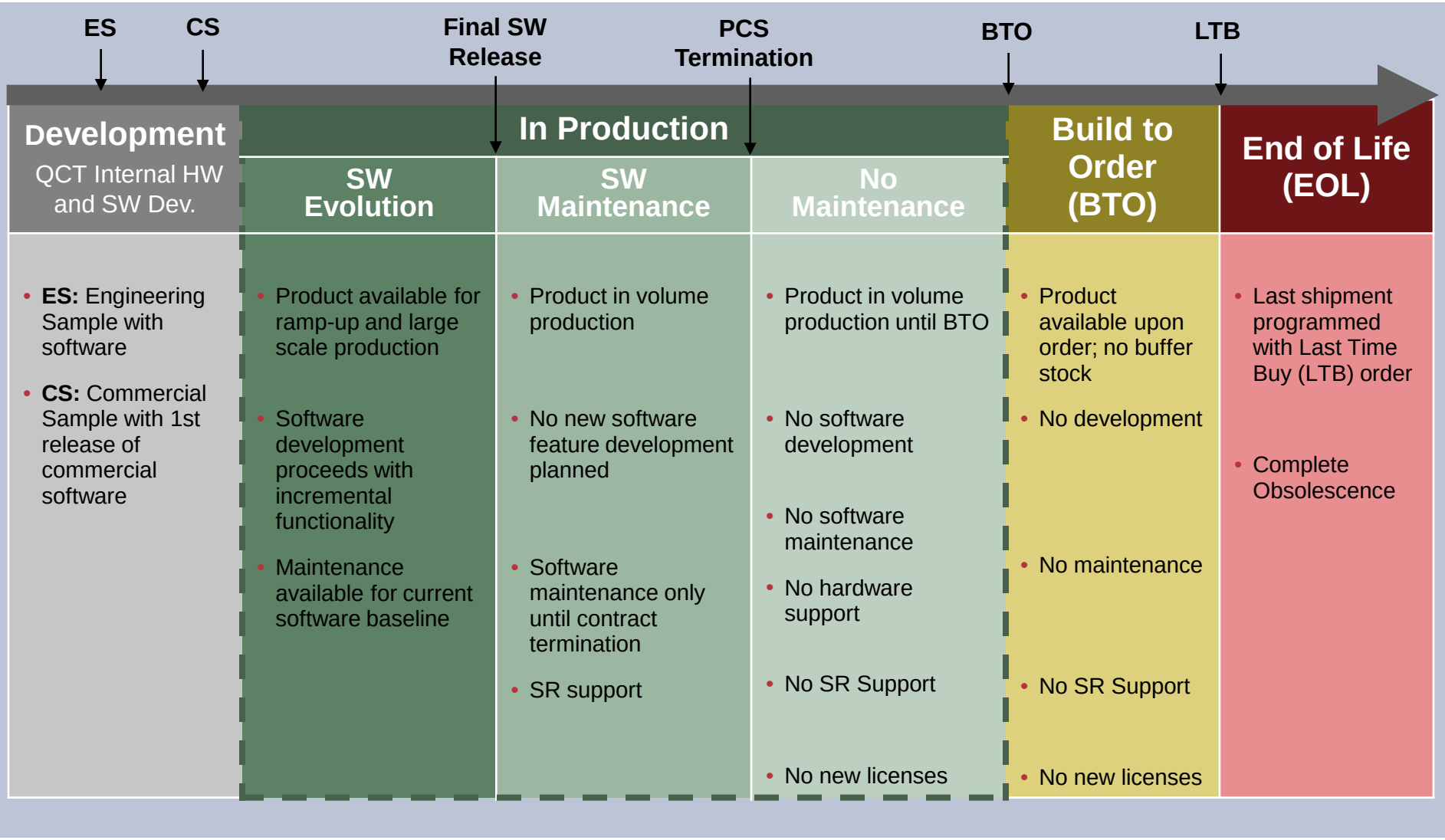
CSP – Chip Scale Packaging
NSP – Nano Scale Packaging
PCSP – Chip Scale Package with Package-on-Package (PoP)
PNSP – Nano Scale Package with Package-on-Package (PoP)
* Does not include PoP memory package

✓RoHS: EU Restriction on Hazardous Substances Directive compliant

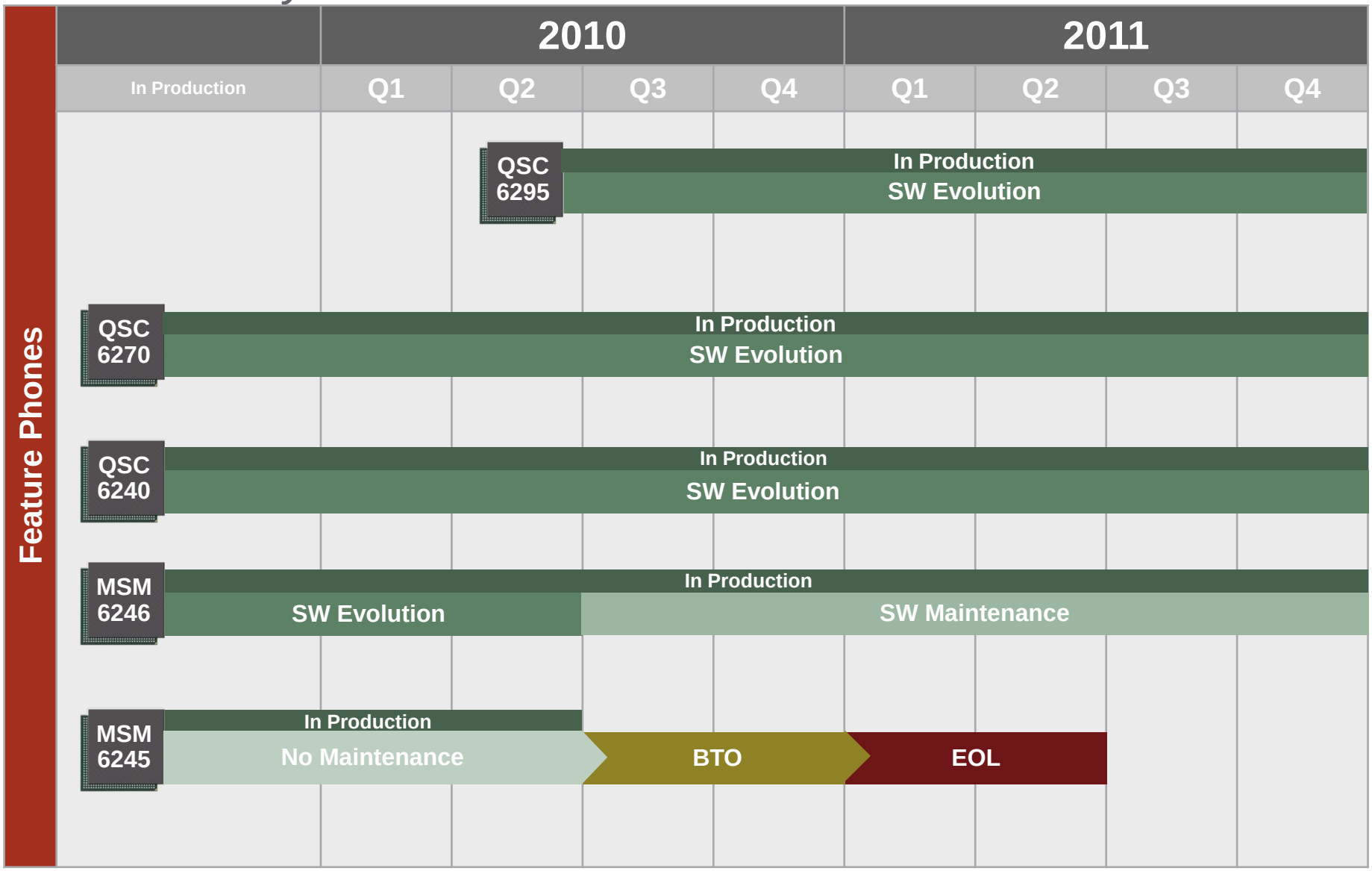
UMTS Life Cycle Plan

March 2010

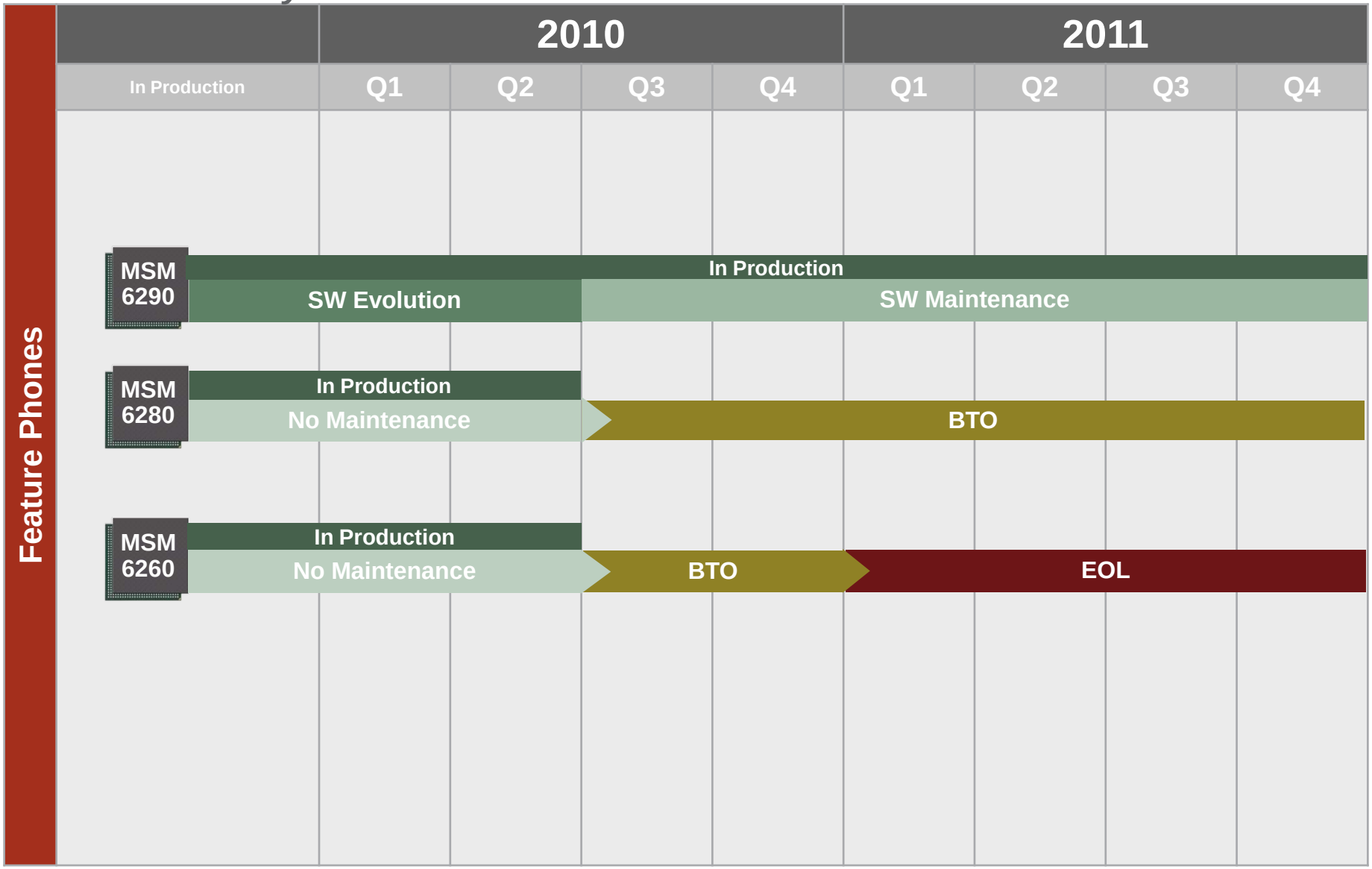
QCT UMTS Life Cycle



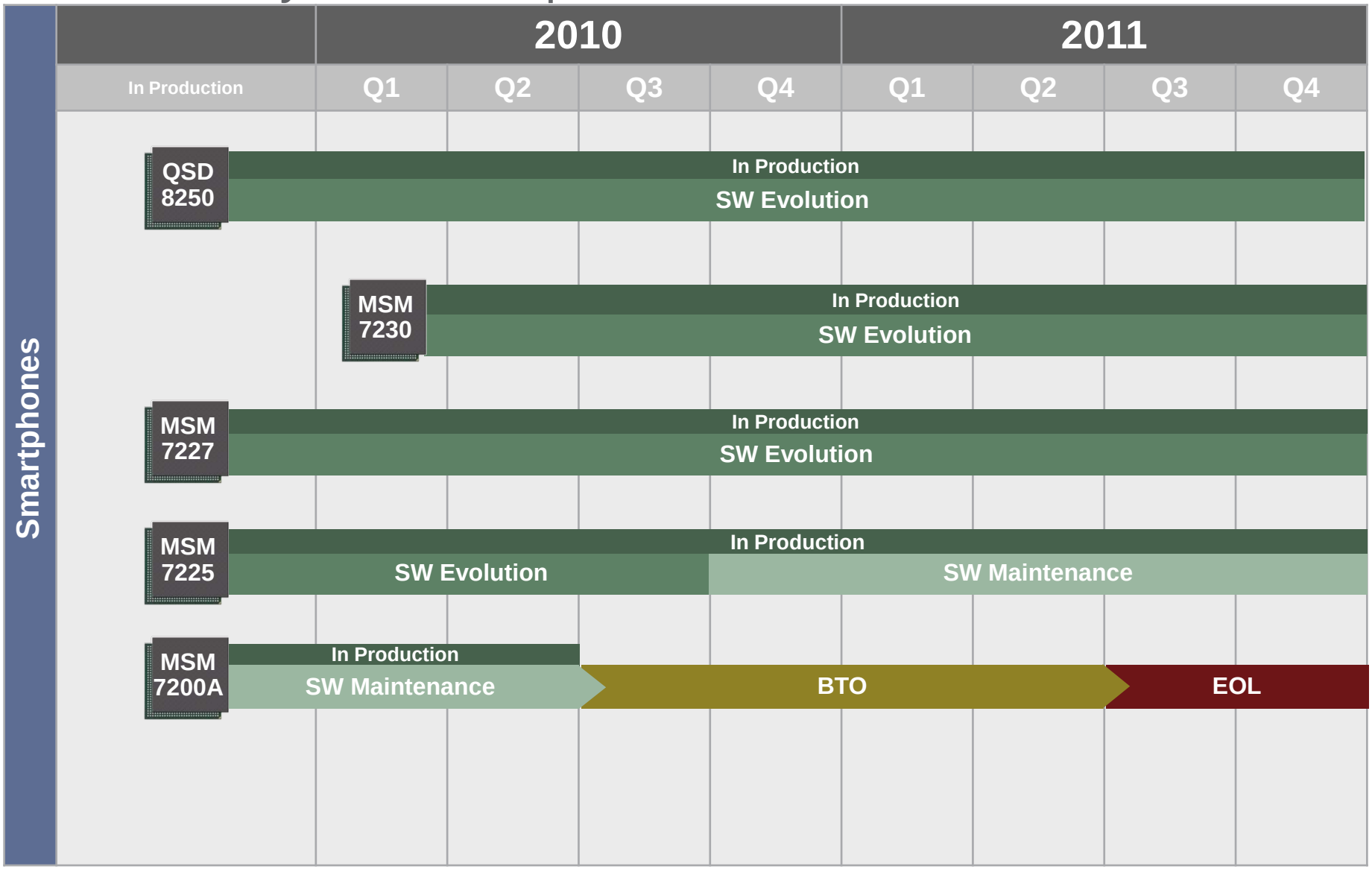
UMTS Life Cycle – Feature Phones



UMTS Life Cycle – Feature Phones



UMTS Life Cycle – Smartphones

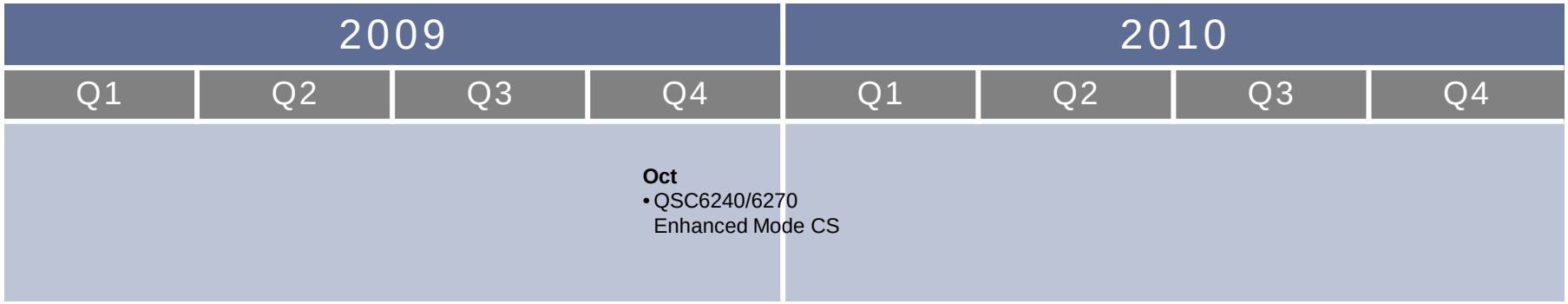


Detailed SW Development Schedules

March 2010

QSC6240/6270 Development Schedule

ES: Engineering Samples, CS: Commercial Samples



SW

1.5X Baseline

Jul'09 – 1.5 CS
- WB-AMR
- MegaSIM
- Memory Optimization Phase 1(27 MB SDRAM for low end phones/ demand paging)
- 5MP Camera (6270)
- Config 1b/2b

2.X Baseline

Sep – 2.x **FC**

Jan'10 – 2.x CS
- GSM Linear PA
- XO support
- H.264 Video Sharing
- Brew Mobile Platform 1.0.2
- Memory Optimizations II (22MB)
- AMR-WB (Dual MIC)
- Fluence Dual MIC (noise cancellation)
- IMS 5.1(AT&T Video Share)
- WLAN(AR6002)
- Enhanced Mode (230/115/115)
- Ecall (Automotive Emergency Call)
- Board Area Optimizations

3.X Baseline

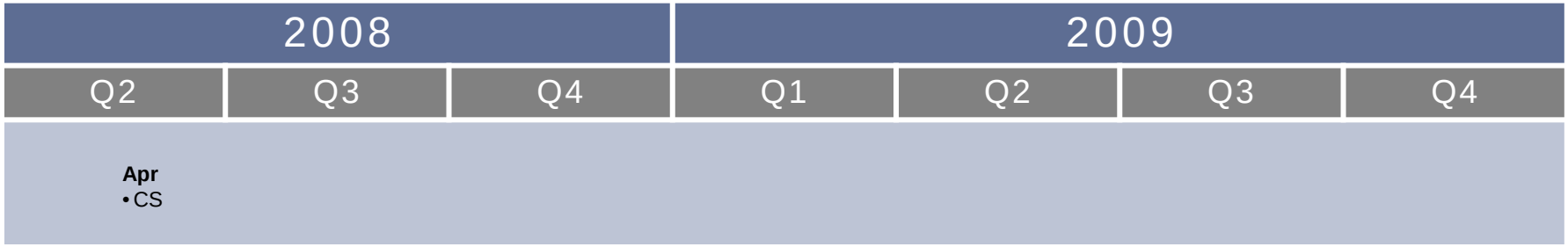
Mar – 3.x **FC**

Jun'10 – 3.x CS
- DualSIM/Dual Standby
- Broadcast (CMMB , ISDB-T)
- BMP 1.0.3

NOTE: Not all features listed

MSM6246 Development Schedule

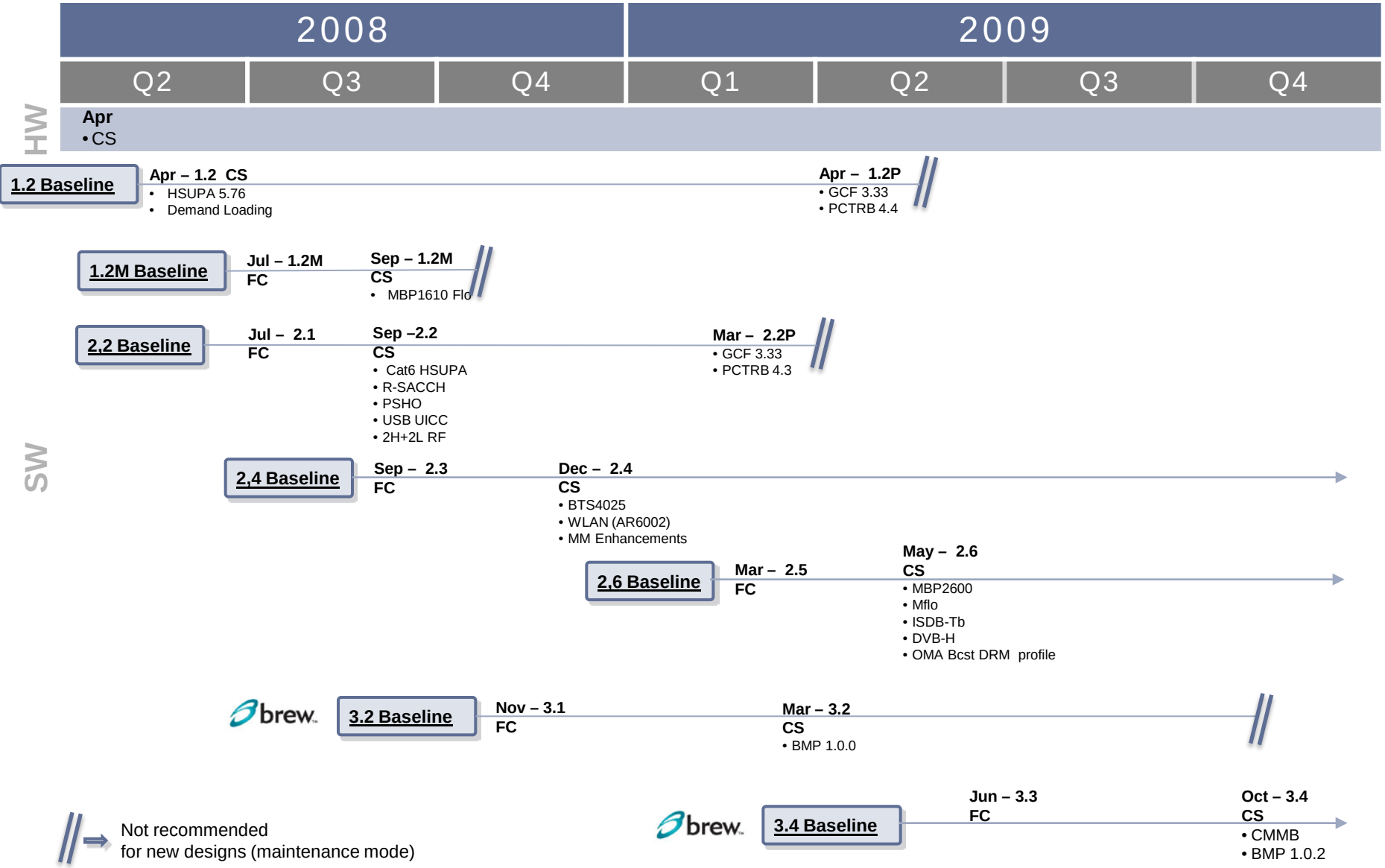
ES: Engineering Samples, CS: Commercial Samples



Not recommended for new designs (Maintenance Mode)

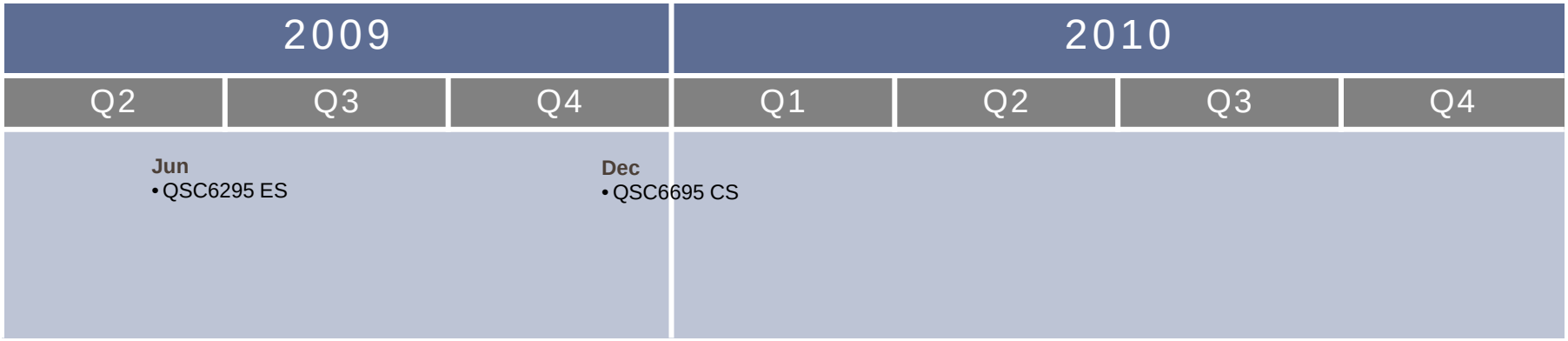
MSM6290 Development Schedule

ES: Engineering Samples, CS: Commercial Samples



QSC6295 Development Schedule

ES: Engineering Samples, CS: Commercial Samples



SW

2.x Baseline

Feb – 2.1
Feature Complete

May –2.2
Commercial

- Cat 9/10 HSDPA
- SCH IC
- Equalizer for Rel 99
- Enhanced F-DPCH
- DTX,DRX
- 5MP Camera, Bcast
- Gen 8 gpsOne Engine, GNSS
- Power Optimizations
- BMP1.0

Q4'10 – 3.2
Commercial

3.X Baseline

- UMTS Modem enhancements (Enh Cell FACH)
- DS/DS
- HVGA Support
- BMP1.1
- OpenMAX APIs
- WCN1312 support

NOTE: Not all features listed

MSM7225 Development Schedule

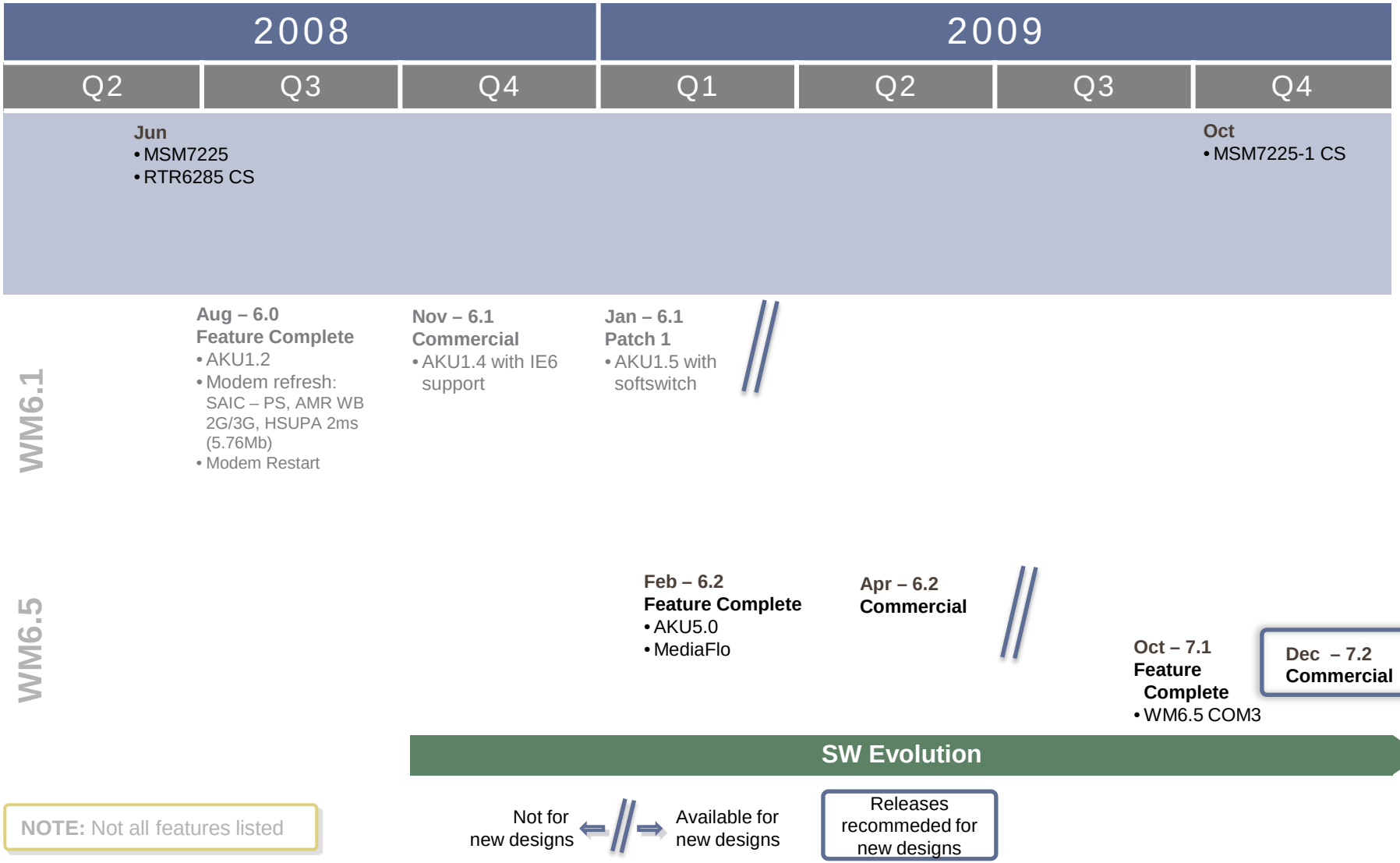
ES: Engineering Samples, CS: Commercial Samples

	2009		2010			
	Q3	Q4	Q1	Q2	Q3	Q4
HW		**Oct** • MSM7225-1 CS				
SW BMP			**Feb FC– 1.0** **Feature Complete** • **BMP 1.0.2**	**Mar– 1.1** **Commercial** • **BMP** • **IMS** • **MediaFlo**		

Releases recommeded for new designs

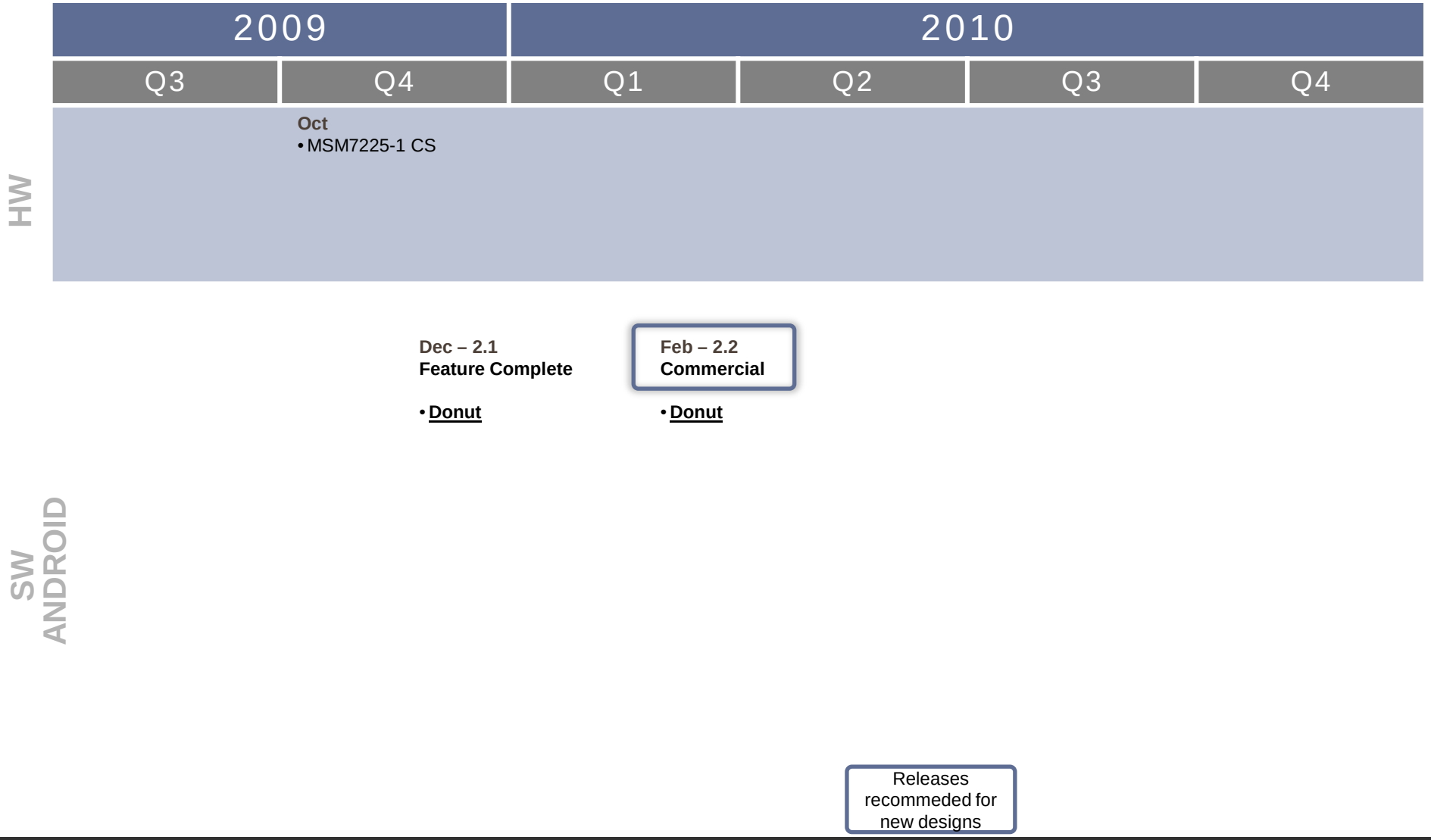
MSM7225 Development Schedule

ES: Engineering Samples, CS: Commercial Samples



MSM7225 Development Schedule

ES: Engineering Samples, CS: Commercial Samples



MSM7227 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2009			2010		
	Q2	Q3	Q4	Q1	Q2	Q3
HW		**Aug** • MSM7227 1.2 CS				

- 600MHz A11 w L2
- Graphics: Open GL ES 32M triangles/sec
- QTV: MP4 / H.263 / H.264 -- 30fps @ WVGA, 2Mbps
- QTV: WMV-9 -- 30fps @ VGA, 1Mbps
- Qcam: MPEG-4/H.263/H.264 -- WVGA @ 15/30fps, 1Mbps

SW BMP

Mar – 1.0 **ES**	July – 1.1 **Feature Complete**	Sep– 1.2 **Commercial**	Dec– 1.2p2	Feb – 1.3 **Commercial**
•HSDPA 7.2 Mbps R5 Support • HSUPA 5.76 Mbps Support (2ms TTI) • Concurrent HSDPA 7.2Mbps and HSUPA 5.76 Mbps		**BMP 1.0.2**	• Bug fixes	• MediaFlo • BT 3.0 • IP APIPA • IP Multicasting

NOTE: Not all features listed

Not for new designs ⟸ // ⟹ Available for new designs

Releases recommeded for new designs

MSM7227 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

2009

Q1	Q2	Q3	Q4

HW

Jan
- MSM7227 ES

Aug
- MSM7227 1.2 CS

- 600MHz A11 w L2
- Graphics: Open GL ES 27M triangles/sec
- QTV: MP4 / H.263 / H.264 -- 30fps @ WVGA, 2Mbps
- QTV: WMV-9 -- 30fps @ VGA, 1Mbps
- Qcam: MPEG-4/H.263/H.264 -- WVGA @ 15/30fps, 1Mbps

SW WM6.5

Jan – 2.0
ES

- AKU5.0
- HSDPA 7.2 Mbps R5 Support
- HSUPA 5.76 Mbps Support (2ms TTI)
- Concurrent HSDPA 7.2Mbps and HSUPA 5.76 Mbps
- Managed Roaming Enablement

Mar – 2.1
Feature Complete

July – 2.4
Commercial

Oct – 3.1
Feature Complete

- WM6.5 COM3

Dec – 3.2
Commercial

- WM6.5 COM3

Not for new designs ⇐ // ⇒ Available for new designs

Releases recommeded for new designs

MSM7227 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2009				2010
	Q1	Q2	Q3	Q4	Q1
HW	**Jan** • MSM7227 ES		**Aug** • MSM7227 1.2 CS		
SW ANDROID	**Mar – 4.0** **ES** • UMTS • SIM Application Toolkit Phase I • Dial-up Networking over USB (UMTS only) • 2K NAND • USB Peripheral Class: Mass Storage / ADB • SD/SDIO • Audio Decode: PCM Playback • Mobile Display Processor (MDP) HW Accelerated Driver • Display: MDDI • Open GL ES 1.0/2.0		**Aug – 4.1** **Feature Complete** • All ES Features+ • Donut • Worldmode 3G Support • OneNAND, iNAND, and MoviNAND • BTS4025 Bluetooth Driver • Power Management • Audio Decode: AAC, AAC+, eAAC+, AMR-NB, MP3, EVRC, QCELP • Audio Encode: PCM Record, AMR-NB • Video Decode: MPEG4, H.263, H.264 • Video Encode: MPEG4, H.263 • Camera • A-GPS • Display: LCDC • OpenVG 1.1	**Oct– 4.2** **Commercial** • **Donut**	**Jan – 5.1** **Feature Complete** • **Éclair** • PM8027 **Mar – 5.2** **Commercial** • **Éclair**

Not for new designs ⇐ // ⇒ Available for new designs

Releases recommeded for new designs

MSM7230 / MSM8255 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2009		2010			
	Q3	Q4	Q1	Q2	Q3	Q4
HW	**Jul** • MSM7230-1 ES	**Sep** • MSM7230-0 ES		**Mar** • MSM7230-0 CS • MSM7230-1 CS	**Apr** • MSM8255-0 CS	
SW BMP	**Jul– 1.0** **ES** • RF Cal / Factor test mode • Board Support Package drivers for essential components • Graphics test application • Limited testing		**Mar – 1.1** **Feature Complete** • BSP drivers implemented • Feature complete Modem •Audio/Video codecs • Low power audio implementation • Partial product testing	**Jun – 1.2** **Commercial** • Baseline for commercialization • Significant Product testing complete • CPU profiling results available • Power profiling results available • Minimum performance spec compliance • Patches to follow Rel 1.2 to handle exceptions		

NOTE: Not all features listed

MSM7230 / MSM8255 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2009		2010			
	Q3	Q4	Q1	Q2	Q3	Q4
HW	**Jul** • MSM7230-1 ES	**Sep** • MSM7230-0 ES		**Mar** • MSM7230-0 CS • MSM7230-1 CS	**Apr** • MSM8255-0 CS	
SW ANDROID	**Aug – 1.0** **ES** • RF Cal / Factor test mode • Board Support Package drivers for essential components • Modem voice/data calls • Audio playback • Graphics test application • Limited testing		**Jan – 1.1** **Feature Complete** •**Éclair** •BSP drivers implemented • Feature complete Modem •Audio/Video codecs • Low power audio implementation • Partial product testing	**Mar – 1.2** **Commercial** •**Éclair** •Baseline for commercialization • Significant Product testing complete • CPU profiling results available • Power profiling results available • Minimum performance spec compliance • Patches to follow Rel 1.2 to handle exceptions		

NOTE: Not all features listed

MSM7230 / MSM8255 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2009		2010			
	Q3	Q4	Q1	Q2	Q3	Q4
HW	**Jul** • MSM7230-1 ES	**Sep** • MSM7230-0 ES		**Mar** • MSM7230-0 CS • MSM7230-1 CS	**Apr** • MSM8255-0 CS	
SW WM7	Dates for software releases and intermediate deliveries are subject to Microsoft Approval					

May – 1.2
Commercial

• Baseline for commercialization

NOTE: Not all features listed

QSD8250 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2009			2010	
	Q2	Q3	Q4	Q1	Q2
HW	QSD8250 CS				
SW ANDROID	**Mar – 1.0** **ES** • UMTS • UMTS modem • SIM Application Toolkit Phase I • Dial-up Networking over USB (UMTS only) • USB Peripheral Class: Mass Storage / ADB • SD/SDIO • BTS4025 Bluetooth Driver • Power Management • Audio Decode: PCM Playback • Audio Encode: PCM Record, AMR-NB • Mobile Display Processor (MDP) HW Accelerated Driver • Display: MDDI, LCDC • OpenGL ES 1.0/2.0 • NTSC/PAL TV Output	***Aug – Donut** **FRC** **Aug – 2.0** **Feature Complete** • All ES Features+ • OneNAND, iNAND, and MoviNAND • USB Peripheral Class: Composite, CDC/ACM, CDC/ECM • Host Class: Mass Storage, HID, Hub • AR6002 WLAN Driver • BTS4025/AR6002 Combo Module Enablement • Audio Decode: AAC, AAC+, eAAC+, AMR-NB, EVRC, MP3, QCELP • Video Decode: MPEG4, H.263, H.264, VC-1 • Video Encode: MPEG4, H.263, H.264 • Camera • A-GPS • Display: HDMI Support • OpenVG 1.1	**Oct – 3.0** **Commercial** • **Donut**	**Dec – 4.1** **ES** • **Éclair**	**Feb – 4.1** **Feature Complete** • **Éclair** • 3D user experience • HD encode • DoRevB	**Mar – 4.2** **Commercial** • **Éclair**

***Note: Schedules dependent on Google Release Schedules**

QSD8250 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

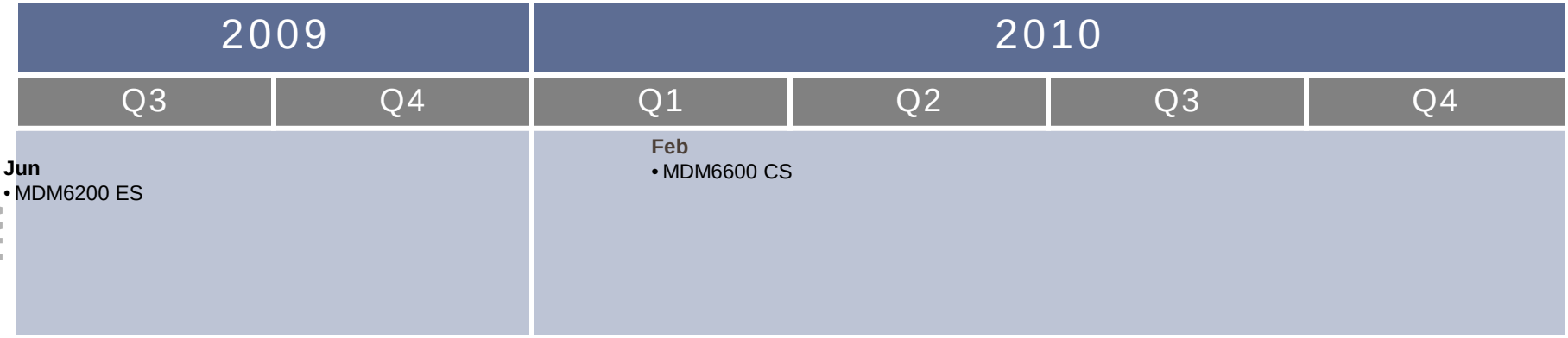
	2008	2009				2010	
	Q4	Q1	Q2	Q3	Q4	Q1	Q2
HW	QSD8250 CS						
SW WM6.1		**Feb – 1.1.0 Feature Complete** • WM6.1.x • AKU1.5	**Mar– 1.1.15 Commercial**				
SW WM6.5		**Feb – 1.5.2 Feature Complete** • WM6.5 • AKU5.0 • Streaming WVGA @30fps Support (H.264, MPEG4) • Streaming WQVGA @15-30fps (WMV-9) • Audio: ADPCM, CMX (MIDI Type 0/1 only)	**May– 1.5.5 Commercial**	**Aug– update Commercial**	**Oct– update Commercial**	**Jan– update – 1.8 Commercial COM 3 support** • 720p encode/decode • DivX	
SW WM7							**May – 2.3 Commercial** • WM7

Dates for software releases and intermediate deliveries are subject to Microsoft Approval

Not for new designs ⇐ // ⇒ Available for new designs

MDM6200 Development Schedule

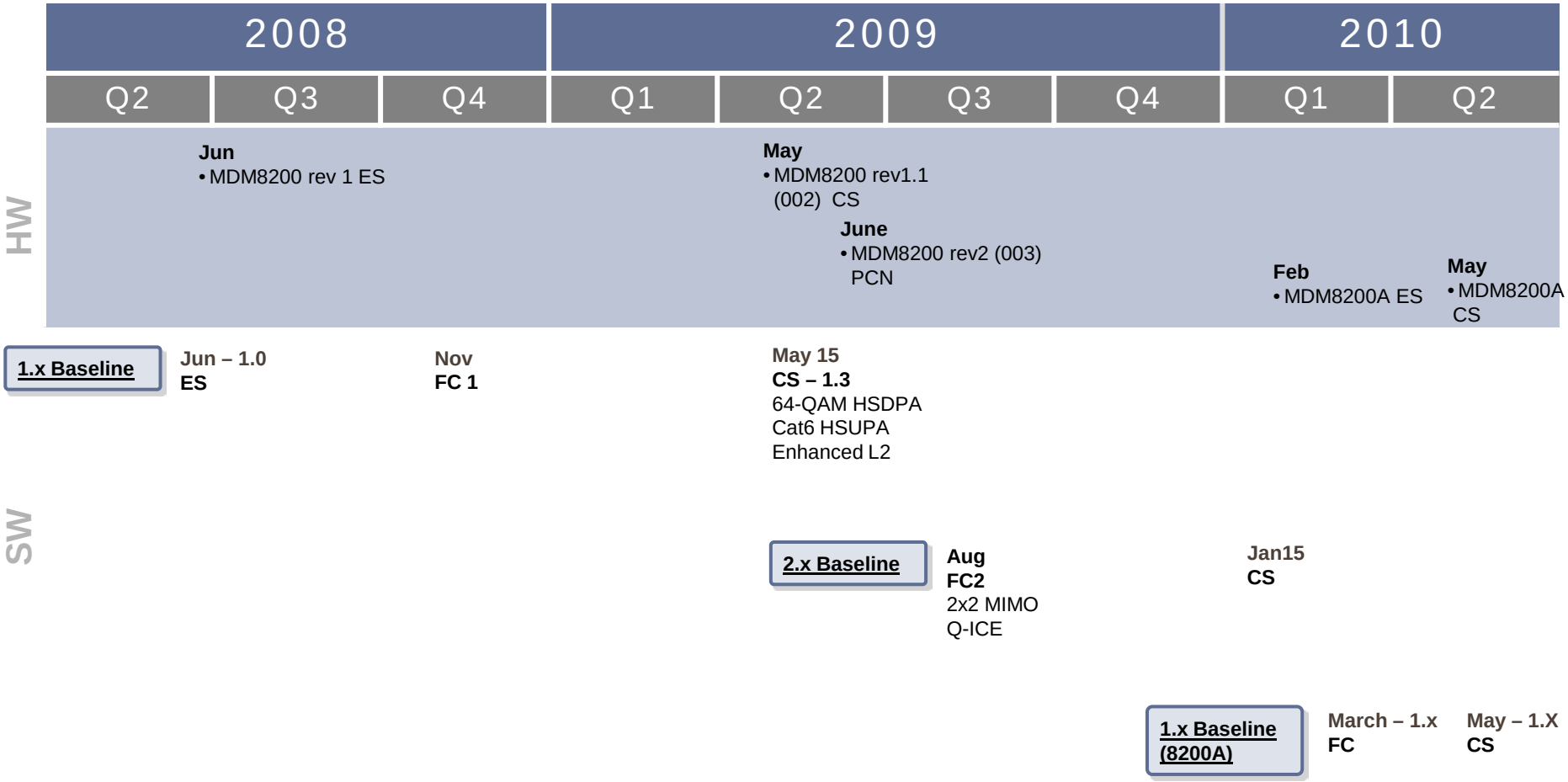
ES: Engineering Samples, CS: Commercial Samples



NOTE: Not all features listed

MDM8200/8200A Development Schedule

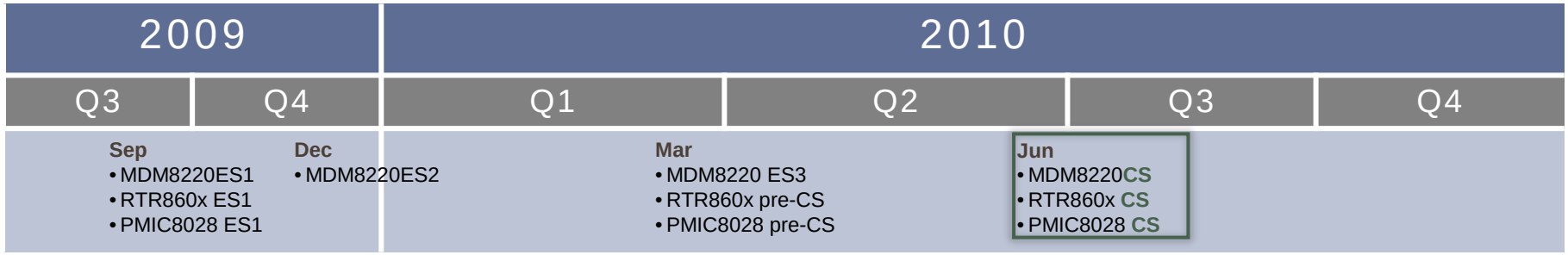
ES: Engineering Samples, CS: Commercial Samples



NOTE: Not all features listed

MDM8220 Development Schedule

ES: Engineering Samples, CS: Commercial Samples



(1) No support for ES HW beyond R2.0.1.0

MDM9200 Development Schedule

ES: Engineering Samples, CS: Commercial Samples

	2009		2010			
	Q3	Q4	Q1	Q2	Q3	Q4
HW	**Sep** • MDM9200 ES1 • RTR860x ES1 • PMIC8028 ES1	**Dec** • MDM9200 ES2		**Mar** • MDM9200 pre-CS • RTR860x pre-CS • PMIC8028 pre-CS	**Jun** • MDM9200 **CS** • RTR860x **CS** • PMIC8028 **CS**	
SW	**R0.5**.0.0 (R 0.5) **Sep '09** **Bring up** • Boot • Diag • HS-USB	**R0.8**.0.0 (R0.8) **Nov '09** **LTE** • FTM • Srch **UMTS** • R99	**R1.0**.1.0 (R0.9) **Dec '09** **ES2 HW** **GERAN** • GPRS	**R1.0**.1.1 (R1.0) **Mid-Jan '10** **FDD Call** • 10 MHz FDD • Access, registration, paging • Data call with limited rates, no mobility • IPv4, no QoS	**R1.0**.1.2 (R2.0) **End- Feb '10** **LTE Mobility** • Intra-LTE mobility (idle/con. w/o measurement) • System selection • Security • LTE IPv6/QoS • SMS over IMS in LTE • Peak data rates in 10MHz **GPS** • RF Dev.	**R1.0**.1.3 (R3.0) **Mar '10** **LTE Mobility** • Mobility(w/ measurement)	**R2.0**.1.0 (R4.0) **Apr'10** **Alpha** • Pre-CS HW only (1) • LTE BWs (5,20) • Peak data rates in 20 MHz • LTE<-> UMTS/ GERAN idle mobility (Cell Reselection) • Connected DRX • LTE => UMTS /GERAN redirections (w/ measurements) • UMTS /GERAN=> LTE redirections (w/o measurements) • BPLMN • SMS over SGs **2G/3G** • Rel 8 DC-HSPA+ • UMTS/GERAN inter-RAT **GPS** • Standalone in LTE/UMTS/GSM + XTRA 1.0 • GSM/UMTS C/P A-GPS • GSM/UMTS U/P A-GPS (SUPL1.0)	**R2.0**.2.0 (R4.1) **Jun'10** **Feature Complete**	**R2.0**.3.0 (R4.2) **Sep'10** **Commercial**

R1.0.1.1.20
Jan 29th, '10

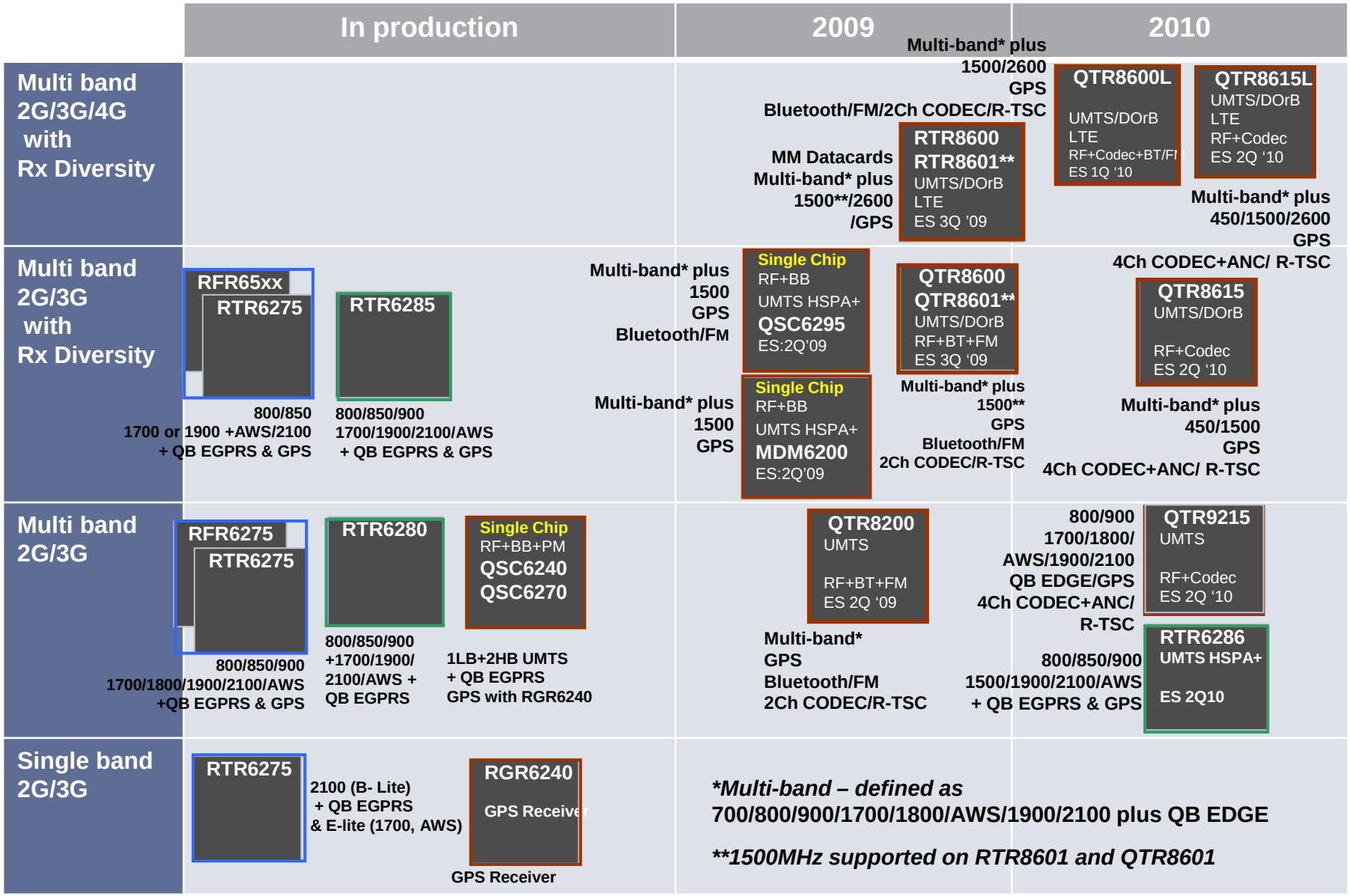
• Higher data rates

(1) No support for ES HW beyond R2.0.1.0

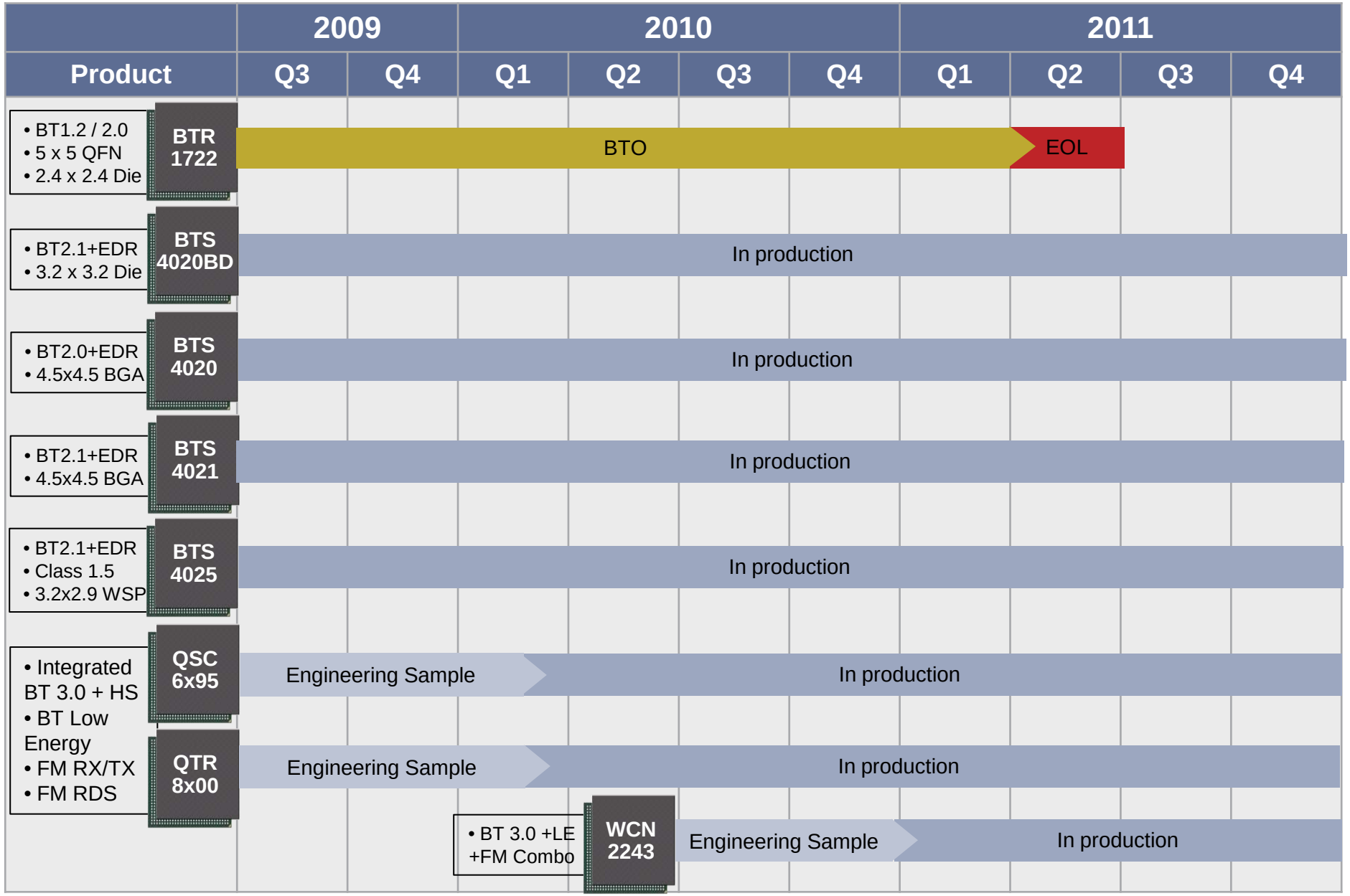
RF Roadmap

UMTS RF Product Roadmap (Engineering Sample)

0.25um RFCMOS | 0.18um RFCMOS | 65nm RF CMOS



QCT Bluetooth / FM Hardware Roadmap



WLAN Mobile Roadmap

2009		2010		2011	
1H	2H	1H	2H	1H	2H

Available

WCN1312

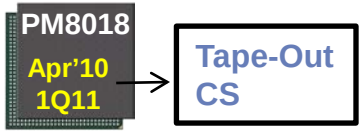
- 65 nm CMOS
- 1x2 or 1x1
- 802.11b/g/n
- >40 Mbps TCP/IP
- Integrated PA and T/R switch
- LGA module
- 7 mm x 7 mm

2Q'10 ES

WCN1314

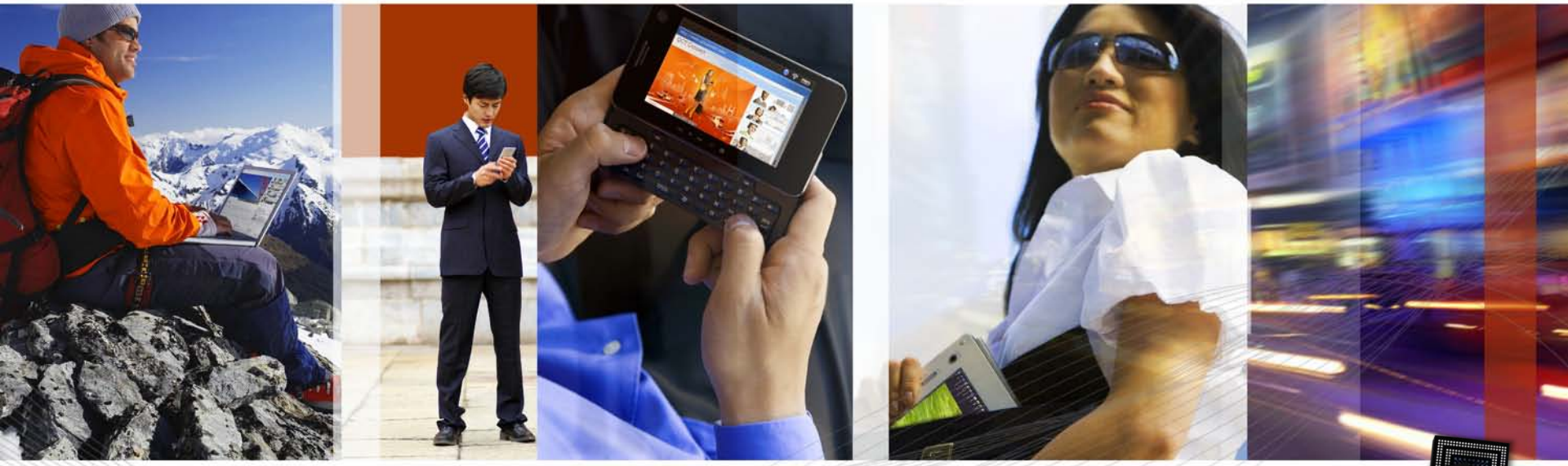
- 65 nm CMOS
- 1x1 only
- 802.11b/g/n
- >40 Mbps TCP/IP
- Integrated PA
- 3.6 x 4.2 mm WLNSP
- BOM reduction
- Reduced power consumption
- Tx output power increase (+20 dBm)

2009-12 PMIC Roadmap



	2009-10	2011	2012
SMARTPHONES	PM8058 3Q09 1Q10 PM8901 4Q09 4Q10 Chipset Combination: - MSM7x30 + PM8058 - MSM8660 + PM8058 + PM8901 - QSD8672 + PM8058 + PM8901 Supporting 28nm*	PM8018 Apr'10 1Q11 PM8921 1Q11 4Q11 * Chipset Combination: - 28nm high + PM8018/8921	PM8068 2Q11 2Q12 * Chipset Combination: - 28nm Mid + PM8068
FEATURE PHONES	PM8028 3Q09 2Q10 Chipset Combination: - QSC6x95 + PM8028 - MDM9k + PM8028 - MDM8200A + PM8028 PM8015 1Q10 3Q10 Chipset Combination: - MDM6x00 + PM8015		PM8038 2Q11 2Q12 * Chipset Combination: - 28nm Low + PM8038 - 28nm Feature + PM8038

* = Planning



QUALCOMM CDMA Technologies

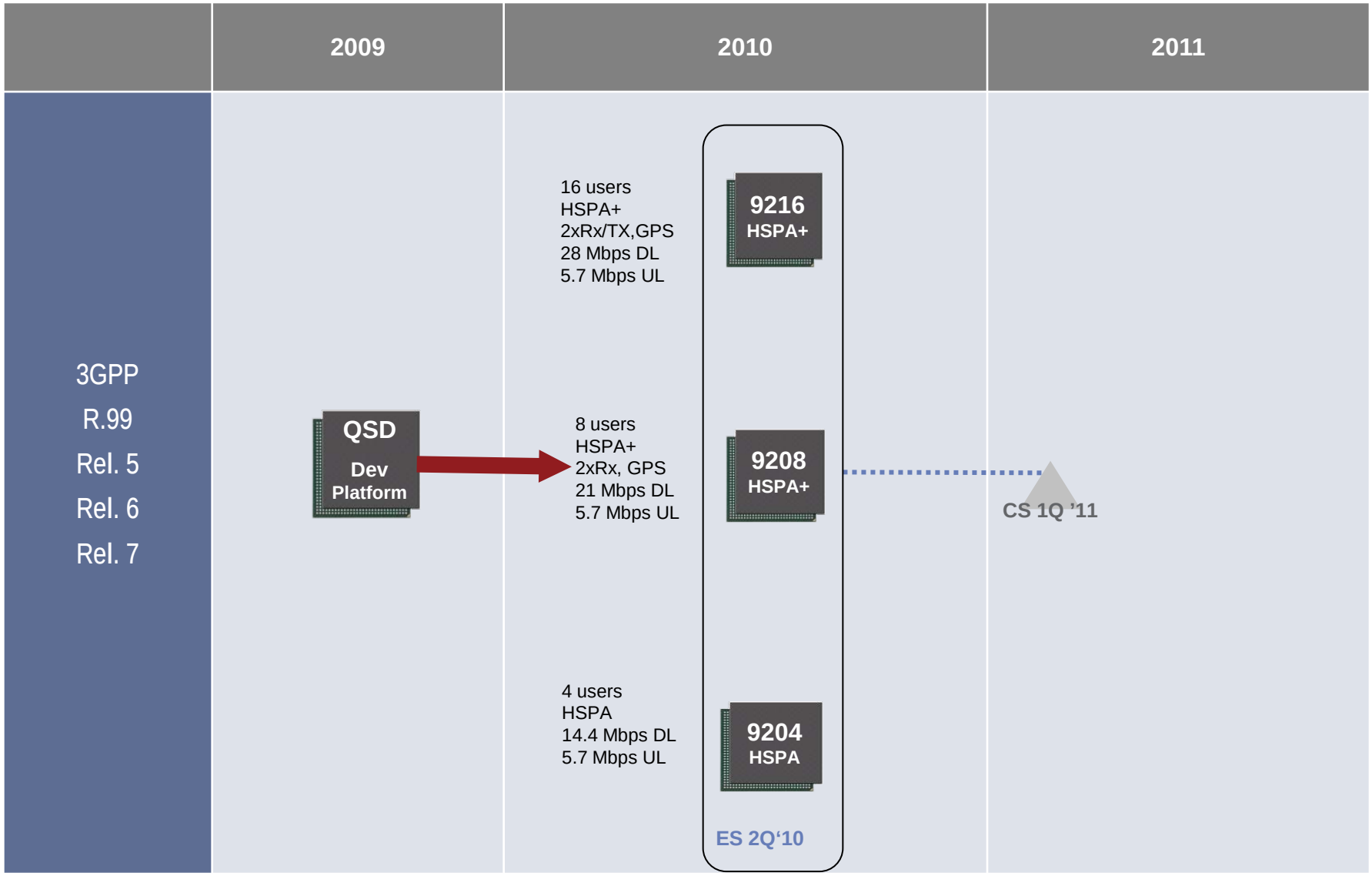
REDEFINING MOBILITY

QCT FSM UMTS Product Roadmaps

March 2010

(Disclosed Under NDA)

QCT FSM Roadmap – **NDA**



Specifications are subject to change

Multimode Femto RF Roadmap – **NDA**

65nm RF CMOS

	Multimode (CDMA/UMTS/GSM)		
	2009	2010	2011
Multi Mode 3G with Tx Diversity & Rx Diversity		**FTR8700** 1x&DO /HSPA+ DOrA/B ES 2Q '10 800/900/JCDMA+ AWS/KPCS/1800/ 1900/2100/2600	
Multi Mode Network Listen 2G/3G with Rx Diversity & GPS	**RTR8600** **RTR8601*** UMTS/DOrB LTE ES 3Q '09 700/800/900/1500* 1700/1800/AWS/1900/2100/2600 QB EDGE /GPS		*1500MHz supported on RTR8601 only

Specifications are subject to change

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