

Analysis - Fishy Chip Shares in Basebands

By Keith Mallinson Wednesday, December 3, 2008

Different counts on baseband chips can be misleading.

Texas Instruments (TI), supposedly the market leader in cellular baseband chips with about 40% unit share, reportedly is looking to sell its business.

Recent market exit announcements cast doubt on how much more value TI and Freescale offer in basebands than do silicon foundries such as TSMC and Chartered in conjunction with independent packaging and testing houses. These other companies supply many fabless semiconductor companies such as Qualcomm and InterDigital Communications. Neither customers nor competitors want what TI and Freescale have to offer in merchant (i.e., own design) basebands. Prospective buyers can easily be identified on one hand.

Nokia and Motorola call the shots from the top of the value chain in so-called custom chip supply arrangements with TI and Freescale, respectively. In contrast to custom Harleys, kitchens and enterprise IT solutions where those in the supply chain create most of the added value, it's the customers in custom chips that create and own most of the intellectual property for these sophisticated and software-intensive products. However, TI disputes that claim, saying it has added value in its silicon design, analog and digital signal processing technology.



Keith Mallinson

CHANGE OF GUARD

TI's custom supply arrangements with Ericsson Mobile Platforms (EMP), which supplies Sony Ericsson and LG, are jeopardized by EMP's new joint venture with ST-NXP. Motorola recently paid off Freescale to cancel its remaining purchasing obligations to this supplier. Motorola historically represented 90% of Freescale's cellular segment sales with custom chips.

Even though Apple is usually described as the iPhone "manufacturer," it's widely recognized that the device isn't actually manufactured by Apple. Production is subcontracted to Foxconn (Han Hai) in Taiwan. Apple combines a wide array of merchant components including the baseband in its overall phone design. The addition of Apple's rich and innovative software completes the product. Analysts correctly ascribe the iPhone's share of the mobile phone market to Apple and not to Foxconn. Meanwhile, Foxconn is legitimately included in analysts' separate assessments of supply shares in contract manufacturing.

In contrast, the baseband industry structure is misrepresented and misunderstood. Custom and merchant products compete in a large global market worth more than \$10 billion.

BASEBAND CHIPS

The baseband is the mobile phone's central communication brain and most costly component. In market analysis of silicon production, it makes sense to fold basebands in with other chips, including those used in TVs, DVD players, game consoles, computers, enterprise networking equipment and cars. However, this approach misrepresents the value chain with costs, pricing and competitive structure in the distinct component market for basebands.

Most value is in intellectual property including software, protocol stack development and system design rather than in the means of production for wafers. Similarly, microprocessor chips for PCs, mobile phones and chips for other products have value that's distinct from the general foundry capacity used to make them.

The majority of baseband chips employed in mobile phones from NTT DoCoMo, Motorola and Nokia are in-house custom designs that are manufactured on subcontract basis. Together, these handset suppliers accounted for about 60% of phones and basebands last year. In the case of DoCoMo, these chips are specified to the handset vendors.

Merchant product is substituting for custom baseband supply. Nearly every other handset vendor including HTC, LG, RIM and Samsung use only merchant basebands. The supply share from merchant products will increase significantly in the next few years with the rise of new entrant rising stars Apple and Google and as incumbents including Nokia and Motorola second source by introducing merchant chips in some or all of their phones. In August 2007, Nokia announced it was adding three merchant suppliers: Infineon for GSM, Broadcom for EDGE and ST Microelectronics for WCDMA/HSDPA.

Market consolidation in handset and baseband supply with the trend away from custom basebands favors merchant suppliers Qualcomm, Infineon and EMP/ST-NXP and MediaTek. Some of these are fabless or use independent foundries extensively. The value of what they sell is significantly more than what they pay to their manufacturers.

The true competitive structure is difficult to observe in the baseband market figures as they are typically presented. These assign value and units to custom manufacturers including TI and Freescale ahead of the handset vendors who actually own the product rights.

I wonder if TI will continue to be depicted as the baseband market share leader following its contradictory announcement to leave the market?

Mallinson is founder of WiseHarbor, solving commercial problems in wireless and mobile communications.
www.wiseharbor.com