

Global and China GaAs Industry Report, 2012-2013

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Abstracts

Global and China GaAs Industry Report, 2012-2013 covers the followings:

Brief introduction to GaAs

Industry overview of GaAs

Downstream market of GaAs

Analysis on mobile phone RF system

Study on 19 GaAs vendors

In 2013H1, the biggest news in GaAs industry lay in QUALCOMM's introduction of CMOS PA in Feb, corresponding to LTE. That once again initiated the war between CMOS and GaAs. Yet, most people believe that, QUALCOMM did that only to increase competitiveness of its Baseband, not grab market of GaAs vendors.

CMOS PA showed up before 2000, but has not been available in volume and only used in 2G field presently, mainly due to the difficulty to find balance between costs and performance. Yet, it seems that RF360 of QUALCOMM wants to break through the limitation. QUALCOMM is a large mobile phone Baseband vendor, whose revenue comes mainly from 3G and 4G telecommunication patent and Baseband, and is expected to get USD24.5 billion in 2013. Among that, shipment of Baseband is anticipated to reach 700 million units, valuing about USD13.5 billion.

Gross margin of mobile phone PA is less than half of that of QUALCOMM's Baseband, and running very high market risk. PA is the second important part of mobile phone,

which not only decides the voice quality but also determines the stand-by time and talking time. The enterprise seldom changes PA suppliers, once they were selected.

RF360 of QUALCOMM is mainly to deal with MTK and Spreadtrum, and aiming at knock-off digital product Whitebox vendors. Vendors of Whitebox adopt the platform of MTK or Spreadtrum instead of QUALCOMM, for the simpler design and higher level of integration of overall solution of the former two. As for QUALCOMM, it is expert in Baseband design, not integrated solution. So QUALCOMM can't enter the knock-off digital product market, which contains more than 100 million sets. So as to set foot in the field, QUALCOMM introduces the RF360 on purpose, and this chip lowers the mobile phone design difficulty to a large extent. Bundle sales of RF360 and Baseband of QUALCOMM will equip Whitebox vendors with ability to design mobile phone independently.

On the other side, as the No.1 mobile phone vendor, SAMSUNG contributes about USD5 billion to QUALCOMM each year, though unwillingly, since the market of Basebands for smartphone (except Chinese knock-off digital product Whitebox) is monopolized by QUALCOMM. So, SAMSUNG is developing Baseband presently, and some have already been used for the Galaxy S3. However, QUALCOMM introduced RF360 to raise the industry threshold and stop SAMSUNG from developing its own Baseband. SAMSUNG is very weak in RF field, even weaker than Chinese vendors.

Lots of start-ups are dedicated to replacing GaAs PA with CMOS PA, among which, AXIOM has already realized a shipment of over 10 million sets for 2G mobile phones. In addition, Javelin announced to mass-produce 3G PA with CMOS technique this June.

Unlike the start-ups, RFMD, Anadigics, Infineon and other existing suppliers showed skepticism about CMOS PA, believing that it is hard for CMOS PA to strike balance between costs and performance. Even Skyworks, who acquired AXIOM, thinks that application of CMOS PA in high-end market like 3G and 4G is very limited.

Presently, CMOS PAS still has difficulties to achieve balance between costs and performance. It is inferior to GaAs in amplifier performance, further doesn't have absolute advantage of costs. However, many large GaAs vendors acquired CMOS PA companies one after another to make technical reserves. On Apr. 30, 2013, Avago Technologies finished the acquisition of Javelin Semiconductor, without revealing the price. RF Micro Devices took over CMOS PA start-up Amalfi. In 2009, Skyworks acquired Axiom Microdevices. Several weeks ago, Peregrine Semiconductor declared

to cooperate with Murata in developing CMOS silicon-on-sapphire PAs for potential applications of front-end mobile phone modules.

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