



**Global and China GaAs Industry Report,
2012-2013**

May 2013

STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Abstract

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

- 1 Brief introduction to GaAs
- 2 Industry overview of GaAs
- 3 Downstream market of GaAs
- 4 Analysis on mobile phone RF system
- 5 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.

Copyright 2012ResearchInChina

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, Skvworks acquired Axiom

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.

Revenue of Global GaAs Vendors, 2011-2013

	Country	2011 Revenue	2012 Revenue	2013 Revenue	Category	Remarks
Murata	Japan	1,678	1,960	2,328	Fully Integrated	Including SAW Filter, Communication Module, and in 2012 including the PA of Renesas
Kopin	America	125	138	250	Epilayer	
VPEC	Taiwan, China	73	101	51	Epilayer	
AXT	America	104	126	80	Substrate	Held by company in mainland China
Win Semiconductor	Taiwan, China	294	365	433	Foundry	
AWSC	Taiwan, China	56	65	76	Foundry	
TRIQUINT	America	896	908	758	IDM	
Avago Technologies	America	888	1126	1276	IDM	Including revenue of BAW Filter
Anadigics	America	153	146	102	IDM	
RFMD	America	902	810	964	IDM	
SKYWORKS	America	1477	1819	1820	IDM	Covering revenue of analog devices
SEDI	Japan	308	560	450	IDM	Covering Optics Module
M/A-COM Technology	America	310	350	312	IDM	
RDA	Mainland China	289	360	456	IC Design House	
Hittite Microwave	America	264	280	278	IC Design House	

Source: researchinchina.com Global and China GaAs Industry Report, 2012-2013

Copyright 2012ResearchInChina

1 Overview of GaAs

- 1.1 Profile of GaAs
- 1.2 Application of GaAs
- 1.3 Comparison among GaAs, GaN and SiGe
- 1.4 Manufacturing Technique of GaAs

2 GaAs Industry

- 2.1 Industry Chain of GaAs
- 2.2 Global Capacity of GaAs
- 2.3 GaAs Supply and Demand
- 2.4 Ranking of GaAs Vendors

3 Downstream Market of GaAs

- 3.1 Network Devices
- 3.2 Mobile Phone
- 3.3 Global Mobile Phone Market Size
- 3.4 Mobile Phone Market Structure by Brands
- 3.5 Smart Phone Market and Industry
- 3.6 China Mobile Phone Industry by Region
- 3.7 China Mobile Phone Export Scale
- 3.8 China Mobile Phone Export Characteristics
- 3.9 China Mobile Phone Export by Region

4 Wireless RF System Front-End

- 4.1 RF System of Latest Mobile Phones and Tablets
- 4.2 Mobile Phone RF Front-End System
- 4.3 Mobile Phone Filter

- 4.3.1 TDK-EPC
- 4.4 Mobile Phone Antenna Switch
- 4.5 Mobile Phone PA
- 4.6 Supply Relationship between Mobile Phone PA and Brands
- 4.7 QUALCOMM RF 360
- 4.8 Competition among GAAS PA, RF MEMS and XMOS PA

5 GaAs Vendors

- 5.1 MURATA
- 5.2 KOPIN
- 5.3 SEMICONDUCTOR DIVISION OF SUMITOMO ELECTRIC
- 5.4 FREIBERGER
- 5.5 AXT
- 5.6 IQE
- 5.7 WIN SEMICONDUCTOR
- 5.8 AWSC
- 5.9 VPEC
- 5.10 GCS
- 5.11 TRIQUINT
- 5.12 AVAGO
- 5.13 ANADIGICS
- 5.14 RFMD
- 5.15 RDA
- 5.16 SKYWORKS
- 5.17 SEDI
- 5.18 HITTITE MICROWAVE
- 5.19 M/A-COM TECHNOLOGY

- Major Producers in GaAs Industry Chain
- Capacity of Major Global GaAs IDM Vendors, 2008-2013
- Capacity of Major Global GaAs Foundries, 2008-2013
- Global GaAs Demand, 2010-2015
- Capacity and Market Share of Global GaAs Vendors
- Revenue Ranking of Global GaAs Vendors, 2011-2013
- Shipment of Global Household Wireless Network Equipment, 2010-2015
- Global Enterprise-Level Network Device Shipment, 2010-2015
- Global Wi-Fi Device Shipment, 2010-2014
- Proportion of 4G Mobile Phone, 2010-2015
- Average PA Consumption per Mobile Phone, 2010-2015
- Global Mobile Phone Shipment, 2007-2014
- Global CDMA/WCDMA Mobile Phone Shipment by Region, 2010-2013
- Quarterly Shipment of Global Mobile Phone by Brand, 2010-2011
- Shipment of Major Global Mobile Phone Vendors, 2011-2012
- Operating System of Global Smart Phone, 2012Q4
- Shipment of Major Chinese Smart Phone Vendors, 2011-2012
- China Mobile Phone Output by Region, 2012
- Export Volume and Growth Rate of China Mobile Phone, 2000-2012
- Export Value and Growth Rate of China Mobile Phone, 2002-2012
- Export Volume and ASP of China Mobile Phone, 2002-2012
- China's Top 10 Mobile Phone Export Destinations by Shipment, 2011-2012
- Mobile Phone and Tablet - RF Framework
- HTC ONE RF System
- Blackberry Z10 RF System

- 
- SAMSUNG GALAXY S4 RF System
 - Google NEXUS 4 RF System
 - IPHONE 5 RF System
 - SAMSUNG S3 RF System
 - Market Size of Filters and Duplexers of Mobile Phone, 2010-2016
 - Market Share of Major BAW, SAW Vendors, 2011
 - Revenue and EBIT of TDK-EPC, 2008-2011
 - Revenue of TDK-EPC by Product, 2008-2011
 - Shipment of Antenna Switches of Mobile Phone by Technology, 2010-2016
 - Market Share of Major Mobile Phone Antenna Switches Producers, 2012
 - Revenue of Major Global Mobile Phone PA Producers, 2010-2012
 - Market Share of 3G and 4G Mobile Phone PA Producers, 2011
 - Market Share of 3G and 4G Mobile Phone PA Producers, 2012
 - Market Share of 2G Mobile Phone PA Producers, 2011
 - Proportion of Major PA Suppliers of Nokia, 2010-2012
 - Proportion of Major PA Suppliers of Samsung, 2010-2012
 - Proportion of Major PA Suppliers of LG, 2010-2012
 - Proportion of Major PA Suppliers of China-based Grey Brands, 2011-2012
 - Proportion of Major PA Suppliers of APPLE, 2011-2012
 - RF 360 Framework
 - Sales and Operating Margin of Murata, FY2009-FY2014
 - Sales of Murata by Region, FY2009-FY2013
 - Revenue, New Orders and Backlog of Murata, FY2009Q3-FY2012Q4
 - Operating Income and Net Income of Murata, FY2009Q3-FY2012Q4
 - Orders of Murata by Product, FY2011Q1-FY2012Q4

- Revenue of Murata by Product, FY2011-FY2014
- Revenue of Murata by Downstream Application, FY2011-FY2014
- Market Share of Global GaAs Epilayer Vendors, 2010-2011
- Kopin Global Distribution
- Revenue and Operating Margin of KOPIN, 2006-2011
- Revenue of KOPIN by Business, 2008-2011
- Revenue of KOPIN by Client, 2008-2011
- Revenue and Operating Margin of AXT, 2004-2012
- Revenue of AXT by Product, 2006-2012
- Revenue of AXT by Region, 2006-2012
- Revenue and Operating Margin of IQE, 2005-2013
- Revenue of IQE by Business, 2008-2012
- Revenue of IQE by Region, 2008-2012
- Revenue and Operating Margin of WIN Semiconductors, 2006-2013
- Gross Margin, Net Income and Operating Margin of WIN Semiconductors, 2009Q1-2011Q3
- Gross Margin and Operating Margin of WIN Semiconductors, 2009-2012
- Monthly Revenue of WIN Semiconductors, Apr. 2011-Apr. 2013
- Capacity of WIN Semiconductors, 2005-2013
- Output of WIN Semiconductors, 2009-2013
- Core Competitiveness of WIN Semiconductors
- Revenue and Gross Margin of AWSC, 2006-2013
- Monthly Revenue of AWSC, Apr. 2011-Apr. 2013
- Revenue and Operating Margin of VPEC, 2005-2013
- Monthly Revenue of VPEC, Apr. 2011-Apr. 2013
- Quarterly Revenue of VPEC by Product, 2012Q1-2013Q4

- Revenue and Gross Margin of TRIQUINT, 2001-2013
- Revenue of THIRQUINT by Business, 2005-2012
- Mobile Phone Revenue of TRIQUINT by System, 2005-2012
- Revenue of Network Division of TRIQUINT by Product
- GaAs Capacity of TRIQUINT's Texas Plant, 2009Q1-2011Q4
- BAW Capacity of TRIQUINT's Texas Plant, 2009Q1-2011Q4
- FLSAW Capacity of TRIQUINT's Florida Plant, 2009Q1-2011Q4
- FLIPCHIP Capacity of TRIQUINT's Costa Rica Plant, 2009Q1-2011Q4
- RF Framework Trend of Smart Phone
- Revenue and Operating Margin of AVAGO, FY2004-FY2013
- Revenue of AVAGO by Division, FY2007-FY2013
- Revenue and Gross Margin of ANADIGICS, 2003-2013
- Revenue of ANADIGICS by Client, 2007-2012
- Revenue of ANADIGICS by Business, 2005-2012
- Revenue of ANADIGICS by Region, 2008-2012
- Revenue and Operating Margin of RFMD, FY2002-2013
- Revenue of RFMD by Division, FY2009-2013
- Revenue of RFMD by Region, FY2010-2012
- Revenue and Operating Margin of RDA, 2007-2013
- Revenue of RDA, 2009Q1-2012Q1
- Baseband Product Roadmap of RDA
- Product Roadmap of RDA
- Major Clients of RDA
- Gross Margin of RDA, 2011Q1-2013Q1
- China Market Share of RDA's Products

You can place your order in the following alternative ways:

1. Order online at www.researchinchina.com
2. Fax order sheet to us at fax number: +86 10 82601570
3. Email your order to: report@researchinchina.com
4. Phone us at +86 10 82600828/ 82601561

Party A:			
Name:			
Address:			
Contact Person:		Tel	
E-mail:		Fax	

Party B:			
Name:	Beijing Waterwood Technologies Co., Ltd (ResearchInChina)		
Address:	Room 502, Block 3, Tower C, Changyuan Tiandi Building, No. 18, Suzhou Street, Haidian District, Beijing, China 100080		
Contact Person:	Liao Yan	Phone:	86-10-82600828
E-mail:	report@researchinchina.com	Fax:	86-10-82601570
Bank details:	Beneficial Name: Beijing Waterwood Technologies Co., Ltd Bank Name: Bank of Communications, Beijing Branch Bank Address: NO.1 jinxiyuan shijicheng, Landianchang, Haidian District, Beijing Bank Account No #: 110060668012015061217 Routing No #: 332906 Bank SWIFT Code: COMMCNSHBJG		

Title	Format	Cost
<i>Total</i>		

Choose type of format

- PDF (Single user license)2,200 USD
- Hard copy 2,300 USD
- PDF (Enterprisewide license)..... 3,400 USD

※ Reports will be dispatched immediately once full payment has been received.
Payment may be made by wire transfer or credit card via PayPal.