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## **Global and China CMOS Camera Module Industry Report, 2010-2011**

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### 3. CMOS Image Sensor Industry

#### 3.1 Industry Pattern

Generally, CMOS image sensor manufacturers have been divided into three categories, wafer affiliated companies and large-scale IDM company. Omnivision has a close relation to the world's biggest wafer OEM, and the two have two joint ventures. The former of Aptina is a subsidiary of MICRON, a big memory plant, totally responsible for wafer OEM. SETI is the affiliated company of Dongbu Anam wafer OEM. Samsung, Toshiba and STMICRO are IDM. The third is traditional digital camera manufacturer, which produces high-performance CMOS image sensor, with low output and extremely high unit price, Sony, Canon, Sharp, Kodak and Fuji have such abilities. Relying on wafer plant, CMOS image sensor can achieve steady production and reduce cost, and CMOS image sensor business also can fill in 8-inch wafer output capability as well.

#### Market Shares of CMOS Image Sensor Manufacturers in the World (by Shipment), 2009-2010



	Omnivision	Aptina	Samsung	Toshiba	SETI	STMICRO	Other
2009	27.3%	21.2%	**	**	**	**	11.5%
2010	**	**	**	**	**	**	8%

**Market Shares of CMOS Image Sensor Manufacturers in the World (by Revenue), 2009-2010**

Excluding CMOS image sensors of Sony and Canon

	Omnivision	Aptina	Samsung	Toshiba	SETI	STMICRO	Other
2009	20.74%	***	***	***	***	***	***
2010	***	***	***	***	***	***	***

**Market Shares of CMOS Image Sensor Manufacturers in Mobile Phone Field in the World (by Shipment), 2009-2010**

	Omnivision	Aptina	Samsung	Toshiba	SETI	SEMICO	Magnachip	Other
2009	***	***	***	***	***	***	***	***
2010	***	***	***	***	***	***	***	***

**Market Shares of CMOS Image Sensor Manufacturers in Surveillance Field in the World, 2009-2010**

	Omnivision	Aptina	Other
2009	***	***	***
2010	***	***	***

**CMOS Image Sensor for NB/WEB USE**

	Omnivision	Aptina	Other
2009	***	***	***

**CMOS Image Sensor for Auto USE**

	Omnivision	Aptina	Other
2009	***	***	***
2010	***	***	***

#### 4.5 Sunny Optical Technology (Group) Company

Sunny was established in 1984, and its predecessor is Yuyao No.2 Optical Instrument Factory. It entered into the microscope field in 1990, renamed Yuyao Zhonglida Opt-electronics Corporation in 1993, and was listed on Hong Kong Stock Exchange in 2007.

#### Shareholding Structure of Sunny



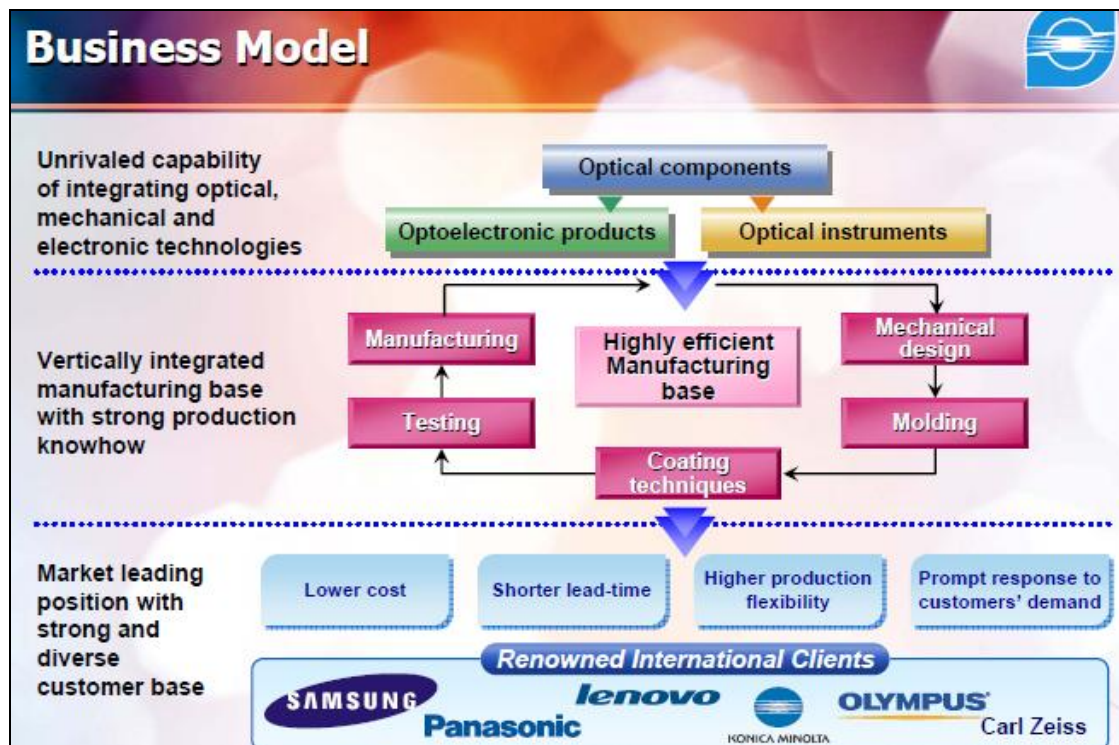
#### Revenue and Gross Margin of Sunny, 2004-2010

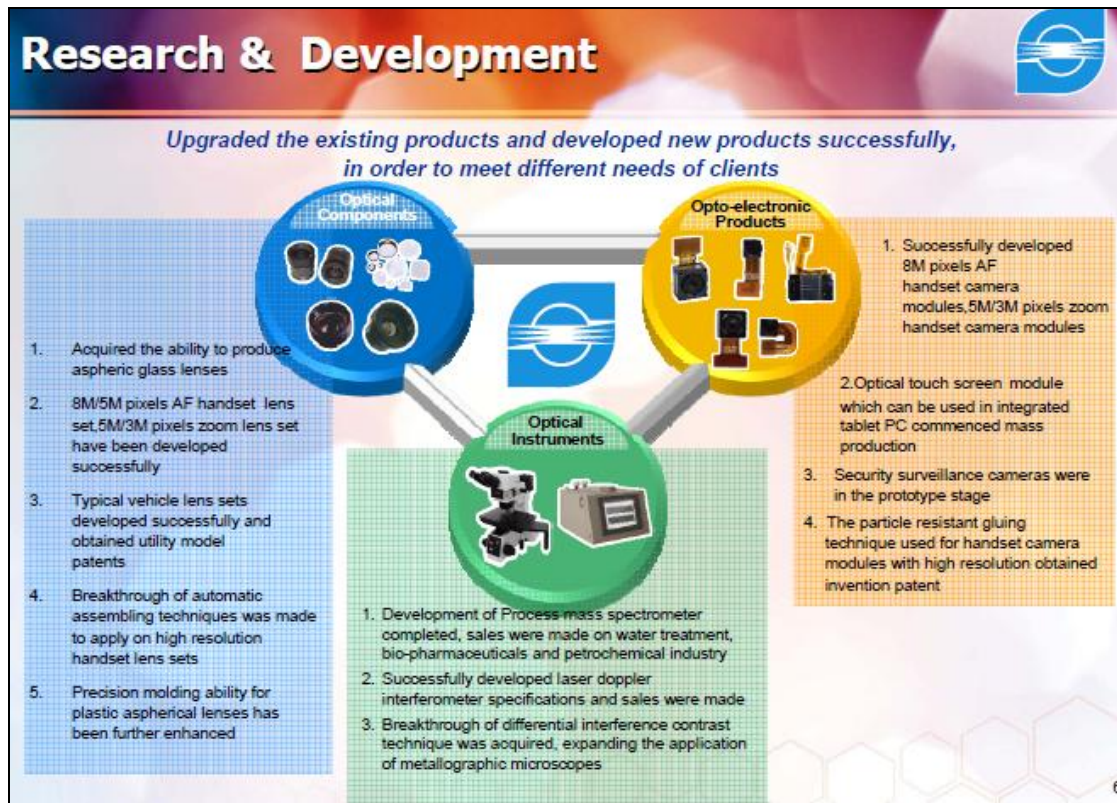


	2004	2005	2006	2007	2008	2009	2010
Revenue (RMB Mln)	308	588	**	**	**	**	**
Gross Margin	18.8%	18.5%	**	**	**	**	**



Sunny has three divisions, namely, optical components division, optoelectronic products division and optical instruments division.



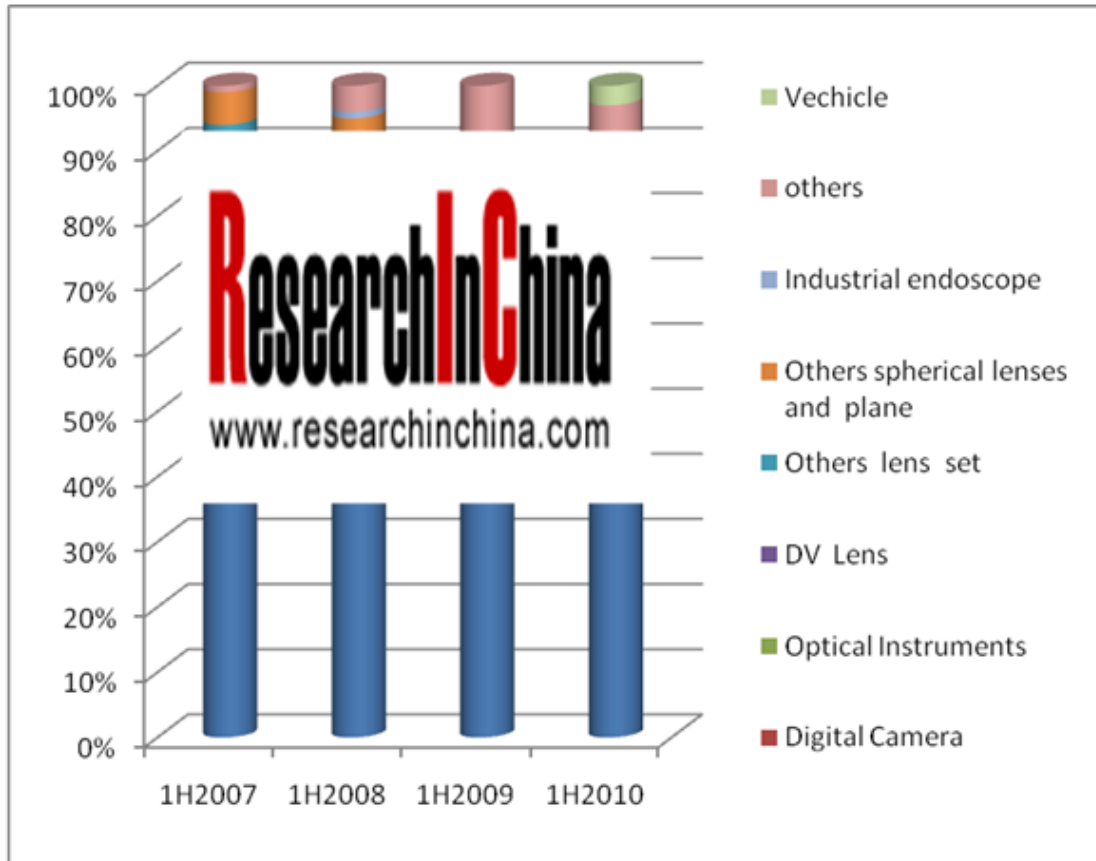


### Sunny's Revenue by Product, 2007-H1 2010

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	1H2007	1H2008	1H2009	1H2010
Optical Components	34.1%	45.4%	45.6%	48.9%
Optoelectronic Product	55.3%	43.2%	45.7%	40.0%
Optical Instruments	10.6%	45.7%	8.7%	11.1%

**Sunny's Revenue by Application, 2007-H1 2010**



	1H2007	1H2008	1H2009	1H2010
Mobile Phone	67	56	47	40
Digital Camera	12	**	**	**
Optical Instruments	10	10	**	**
DV Lens	2	4	**	**
Others lens set	3	2	**	**
Others spherical lenses and plane	5	3	**	**
Industrial endoscope		1	**	**
others	1	4	**	**
Vehicle			**	**

### Gross Margin of Sunny by Division, 2008-H1 2010

	1H2008	1H2009	1H2010
Optical Components	19.6%	24.2%	22.3%
Optoelectronic Product	15.5%	10.0%	12.0%
Optical Instruments	37.2%	31.3%	39.2%

### Sunny's Major Clients

Top 5 Clients	Samsung, Panasonic, Huawei, Bosen, ZTE					
Well-known Clients	Digital Camera Lens	Mobile Phone Lens	CCM	Optical Instrument	Other Business	
	Samsung Panasonic Nikon Sony Konica Minolta Pentax Topcon Fujinon Olympus NEC LG	Sharp (Nokia) Samsung Lite Array Foxconn Truly	Sharp Huawei ZTE Lenovo Haier Coolpad K-Touch Sang Fei Foxconn Gionee	Keyence Carl Zeiss Optika Amscope	Panasonic Sanyo Lite-On Primax Magna Continental Delphi	Autoliv Steel-mate TTE Ricoh Sindoh Silitex Microtek

### Capacity of Sunny, 2007-H1 2010

	1H2007	1H2008	1H2009	1H2010
Lenses(mn units)	60	93	93	96
Lens sets (mn units)	42	73	73.8	80.4
Optoelectronic Products	18	36	36	36.0
Optical instruments (000s units)	82	99.6	99.6	99.6



### Capacity Utilization of Sunny, 2007-H1 2010

	1H2007	1H2008	1H2009	1H2010
Lenses (mn units)	55.8%	62.0%	74.5%	88.1%
Lens sets (mn units)	82.0%	56.3%	50.1%	65.3%
Optoelectronic Products	76.8%	43.9%	32.0%	56.2%
Optical instruments (000s units)	76.0%	63.3%	46.0%	90.3%

Sunny has four bases in Yuyao Zhejiang, Zhongshan Guangdong, Shanghai and Tianjin.



## Mobile Phone Camera Modules of Sunny

RESOLUTION	MODEL NO.	DIST. (%)	TTL (mm)	CRA	STRUCTURE	MAXIMAGE (mm)	BARREL	SENSOR
VGA	2012	<1.5	4.74	26.5	2P	1/5"(Φ3.7)	M7*0.35	OV□660
	2013	<1.5	4.01	28.2	2P	1/5"(Φ3.7)	M5.5*0.35	OV7660
	2015	<1.0	3.4	27.4	2	1/6"(Φ3.1)	M5*0.35	OV7670/MI366/PO3030
	3001	<0.5	2.9	□5.3	2P	1/7.4"(Φ2.8)	M4.5*0.35	MC501CA1/SIV100A/ NOON030
	3002	<1.0	2.92	27.7	2P	1/6"(Φ3.05)	M4*0.35	OV□670/MI366/PO3□30
	3003	<0.5	2.54	25.1	2P	1/8"(Φ2.45)	M5*0.35	S5K83AFX
	3004	<1.0	3.95	26.5	□P	1/7"(Φ3.0)	M5.5*0.35	OV7670/MI366/PO3030
	3005	<1.0	2.	32.4	1P	1/9"(Φ2.05)	M4*0.25	OV6680/OV7680
	3006	<1.5	3.47	27.7	2P	1/5"(Φ3.7)	M5*0.35	OV7660
	3007	<2.□	4.53	28	2P	1/4"(Φ4.6)	M6*0.35	MI360/OV7649
3008	<1.0	2.35	27	2P	1/10"(Φ2.1)	M4*0.25	OV768□/OV6680	
1.3MP	2106	<0.5	6	22.8	3P	1/3.2"(Φ5.7)	M7*0.35	OV9650/S5K3AAE/ NOON130/PO3130
	2108	<1.5	5.26	21.9	3P	1/3.2"(Φ5.5)	M7*0.35	OV9650/NOON130/PO3130
	2109	□1.5	4.92	24.	3P	1/3.2"(Φ5.5)	M7*0.35	OV9655
	2112	<1.5	4.74	26.5	2P	1/5"(Φ3.7)	M5.5*0.35	O□9660
	2113	<1.5	4.01	28.2	2P	1/5"(Φ3.7)	M5.5*0.35	OV96□0
	3103	<1.0	4.92	23.5	3P	1/3.2"(Φ5.6)	M7*0.35	OV9650/MI1320/ S5K4AA/NOON130/PO4130
	3104	<1.0	4.3	25.1	3□	1/3.2"(Φ5.4)	M7*0.35	OV9655
	3105	<1.0	3.7	25	3P	1/5"(Φ3.8)	M5*0.35	OV9660
2MP	3202	<1.0	4.1	23.5	3P	1/4"(Φ4.8)	M7*0.35	OV2640/MI2020
	2206	<0.	□.76	22.8	3P	1/3.2"(Φ5.7)	M7*0.35	MI2010/S5K3BAF
	2208	<1.5	5.21	21.9	3P	1/4"(Φ4.8)	M7*0.35	OV2640/MI2020
	2209	<1.5	4.87	24.3	3P	1/4"(Φ4.8)	M7*0.35	OV2640/MI2020
	3205	<0.5	5	23.1	4P	1/4"(Φ4.9)	□7*0.35	OV2640/MI2020
	3206	<1.0	5.1	22.9	1G3P	1/4"(Φ4.9)	M7*0.35	OV2640/MI2020
3MP	2206	<0.5	5.76	22.8	3P	1/3.2"(Φ5.7)	M7*0.35	OV3630/MI3120
	2308	<1.0	7.1	20.1	□G2P	1/3"(Φ6.1)	M7*0.35	OV3630/MI3120/PS1320
	3302	<1.0	6	23.6	4P	1/3"(Φ6.1)	M7*0.35	OV363□/MI3120/PS1320

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