

Technology

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CES 2024 Preview: AI PC, AR/VR, display/TV and auto tech to be the highlights

Consumer Electronics Show (CES) 2024 will be held on 9-12 Jan in Las Vegas, expecting 130k+ attendees and 4k exhibitors. In this report, we explore potential products and technology trends in CES this year. Overall, we believe AI PC, AR/VR, display/TV, auto and robotics will take center stage in CES 2024. For AI PC, Lenovo, Asus, Dell and Samsung are set to launch a wave of AI PC products, while more new AR/VR devices will be powered by Qualcomm's new XR chip. In display/TV, we expect more larger-size, AI features and rollable/foldable screens from Samsung/LG. For auto tech, electric and autonomous vehicles will remain the key theme, with EV/PBV concepts cars unveiled by Mercedes-Benz, Honda and Kia. For smart home/robotics, brands like Samsung and LG will introduce more technology integration into home appliances and automobiles. Overall, we believe CES 2024 will provide pointers to tech industry trends in 2024, which will be positive on AI PC, AR/VR and auto tech supply chain names, such as Lenovo, Luxshare, Goertek, BYDE, FIT Hon Teng and BOEVx.

- **AI PC: Intel, Qualcomm, Lenovo, Asus, Dell in the spotlights.** Following recent releases of AI CPUs from AMD/Intel, major PC brands (Lenovo, Asus, Dell, HP) will showcase their latest AI PCs lineup. Qualcomm will also launch Snapdragon X Elite CPU for new AI PCs in mid-2024, which is capable of running generative AI models with over 13bn parameters on-device.
- **AI Phone & AR/VR: More AI-enabled products powered by Qualcomm's chips.** We expect new AI phones will be equipped by Qualcomm Snapdragon 8 Gen 3 SoC, and new AR/VR devices will adopt Snapdragon's XR2+ Gen 2 XR chip, supporting 4.3K pixel resolution per eye and 12+ concurrent cameras.
- **Display/TV: AI-features, rollable/foldable, transparent screen.** The theme throughout display/TV segment is larger screens, AI features, and rollable/foldable display for a more immersive experience. We also expect companies to expand their presence in smart home and autonomous driving segments, such as Samsung, LG and BOE.
- **Auto tech: more EVs, AI virtual assistant and flying cars.** Global automakers will have a strong presence and unveil their new EV models and latest in-car technologies. Honda will release a new global EV series and XPeng will debut its latest flying car. As auto landscape shifts towards electric and autonomous vehicles, we expect CES 2024 to heavily feature EVs.
- **Prefer AI PC, AR/VR, display/auto tech exposure; Multiple catalysts in 2024.** We believe AI will undoubtedly be the biggest focus in CES 2024, and companies are keen to showcase their latest AI products. We believe AI PC, AR/VR, display/auto tech supply chain are set to benefit from this trend in 2024, such as Lenovo, Luxshare, Goertek, BYDE, FIT Hon Teng and BOEVx.

Valuation Table

Name	Ticker	Rating	Mkt Cap (US\$ mn)	Price (LC)	TP (LC)	Up/Down -side	P/E (x)		P/B (x)	
							FY23E	FY24E	FY23E	FY24E
Luxshare	002475 CH	BUY	31,322	31.33	47.0	50%	20.2	16.0	2.2	2.0
FIT Hon Teng	6088 HK	BUY	990	1.06	2.1	94%	7.1	5.7	0.4	0.4
Goertek	002241 CH	BUY	9,260	19.39	*19.2	-1%	45.1	25.2	2.1	2.0
BYDE	285 HK	BUY	9,856	34.15	44.2	30%	17.4	13.9	2.4	2.1
BOEVx	710 HK	BUY	657	6.48	21.53	112%	9.9	7.0	1.1	1.0
Lenovo	992 HK	NR	16,125	10.16	NA	NA	9.4	15.7	2.5	2.6

Source: Company data, CMBIGM estimates, * TP under review

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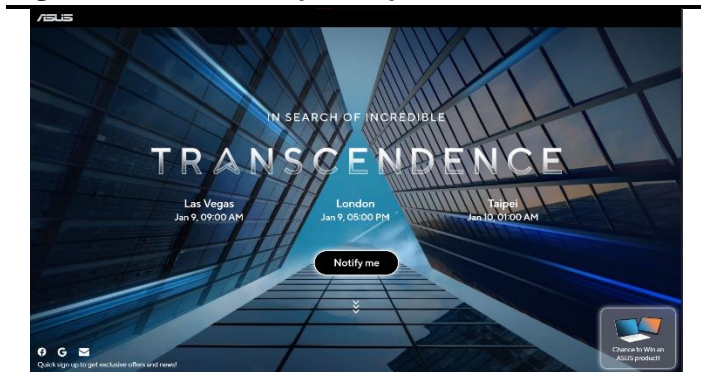
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Key segment preview:

PC and NB

- **Intel** is expected to launch its new Core i9 14900KS CPU, the world's first CPU with 6.2GHz. Intel will also invite PC partners (e.g. Lenovo, Dell, HP, Microsoft) to showcase the latest PCs powered by its new Meteor Lake Core Ultra processors.
- **AMD** is expected to refresh its Ryzen 8000 series desktop processor at CES 2024, based on the same Zen 4 Phoenix architecture, and also introduce RX 7600 XT 16G desktop graphics card, as well as RX 7700M and RX 7800M notebook GPUs.
- **Qualcomm** is expected to debut its ARM-powered Snapdragon X Elite CPU, which is set to launch on new PCs in mid-2024. Qualcomm stated the Snapdragon X Elite platform is built for AI, which is capable of running generative AI models with over 13bn parameters on-device.
- **NVIDIA's** Special Address at CES will focus on consumer technologies and robotics. NVIDIA is expected to launch the desktop graphic card line-ups with the new addition of GeForce RTX 4070 Super and RTX 4080 Super.
- **Lenovo** will showcase ThinkPad X1 Carbon AI commercial PC with Intel Ultra 7 processor and "CPU+GPU+NPU" architecture, and the latest consumer PC Idea Pad Pro 5i equipped with Intel Ultra processor and NVIDIA GeForce RTX 4050 GPU.
- **Asus's** 2024 PC lineup include the Republic of Gamers (ROG) series and new launches in Zephyrus laptops, as well as gaming peripherals.
- **DELL** is expected to showcase an array of Alienware laptops, equipped with Intel Gen 14 series processors and NVIDIA GPUs.

Figure 1: ASUS's multiple PC products in CES 2024



Source: ASUS, CMBIGM estimates

Figure 2: Lenovo's IdeaPad Pro 5i family



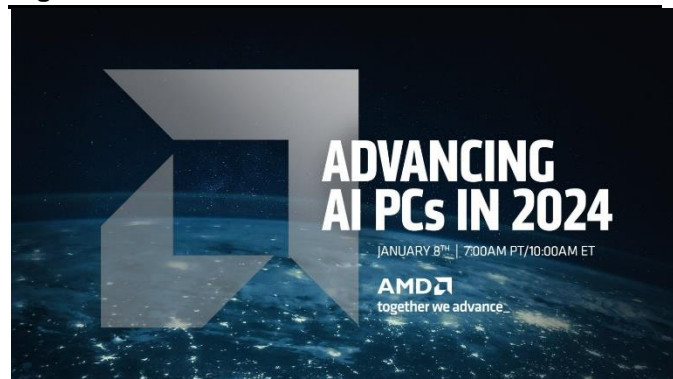
Source: Lenovo, CMBIGM estimates

Figure 3: Intel's presentation on "AI Everywhere"



Source: Intel, CMBIGM estimates

Figure 4: AMD's "the future of AI in PC"

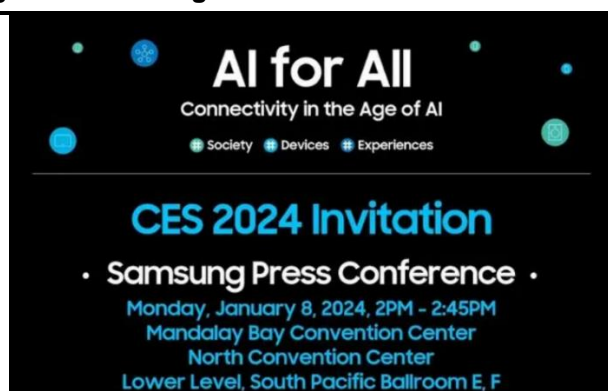


Source: AMD, CMBIGM estimates

Smartphones and AR/VR

- **Qualcomm** is expected to unveil its Snapdragon's XR2+ Gen 2 XR chip, supporting 4.3K pixel resolution per eye and 12+ concurrent cameras. The chip will be used for upcoming devices by Samsung, Google and HTC Vive.
- **Samsung** will hold the conference themed "AI for All: Connectivity in the Age of AI", and we believe Samsung will focus on AI technology, new display/monitors, smart home and new gaming streaming platform, instead of new phones in this event.
- **Goertek** has announced a new MR & VR reference design with Qualcomm's Snapdragon XR2+ Gen2, featuring eye-tracking technology Tobii. We expect more partners will announce devices based on Goertek's solutions.
- **AAC Tech** will display its solutions across intelligent vehicles, acoustics, haptics, XR, optics, precision manufacturing and sensor/semi. AAC offers high-quality 3P VR Pancake modules and cost-effective 2P VR Pancake modules. It has also developed an AR optical waveguide lens in collaboration with Dispelix, and AAC's linear speakers for AR are used in the latest AR glasses products from Rokid, XREAL, and FFALCON.
- **Skyworth** is set to unveil its AR/VR headset, Skyworth Pancake 2, in CES 2024, and this device will boast a MICRO-LED display with 4K resolution.

Figure 5: Samsung: Theme of AI for All



Source: Samsung, CMBIGM estimates

Figure 6: Qualcomm's Snapdragon XR2+ Gen 2



Source: Qualcomm, CMBIGM estimates

Figure 7: Goertek's latest MR & VR reference design



Source: Company, CMBIGM estimates

Figure 8: Skyworth's Pancake XR



Source: Skyworth, CMBIGM estimates

Display and TV

- **LG Display** is expected to showcase a new lineup of OLED TVs that boast powerful AI processors and 144Hz refresh rates. It will unveil the world's first wireless and transparent OLED TV LG Signature OLED T. It will also launch a new generation of automotive display solutions to further accelerate its automotive display solution business optimized for Software Defined Vehicles (SDVs).
- **Samsung** will showcase its new transparent MICRO LED display and the “In&Out Flip” technology that allows the device to fold 360 degrees. It will also unveil a RGB version of OLEDoS for XR headsets, and launch three new Odyssey OLED game monitors. For TV, Samsung will unveil its new AI processor for TV and 2024 Neo QLED 8K TV.
- **BOE** will launch multiple display technologies empowered by three major brands, including LCD displays using oxide technology, the industry's first dual slide OLED display, and curved displays equipped with Mini LED backlight technology. In addition, BOE will also release XR hybrid reality all-in-one machines, 32 inch light field naked eye 3D displays, and multiple display solutions equipped with IoT technologies.
- **Marelli**, a leading mobility technology supplier to automotive, will present its Intelligent Social Display messaging feature, designed to support vehicle-to-x communication. Marelli is conducting mass production for two Chinese car manufacturers, integrating medium resolution displays into the front of the car. In order to integrate functions of the same principle onto the surface of the taillights or trunk, a second-generation high-resolution display screen based on mini LED technology is under development.

Figure 9: Samsung's Neo QLED 8K TV



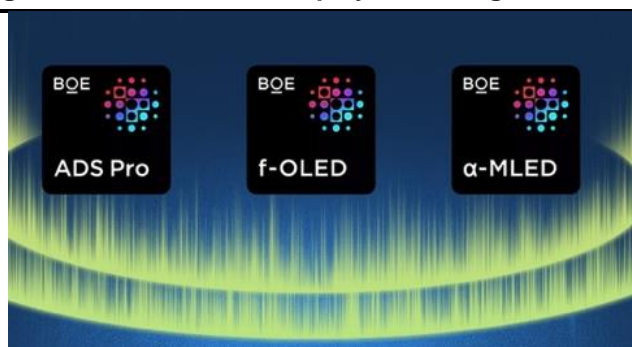
Source: Company data, CMBIGM estimates

Figure 10: LG's transparent TV, Signature OLED T



Source: Company data, CMBIGM estimates

Figure 11: BOE's latest display technologies



Source: Company data, CMBIGM estimates

Figure 12: Marelli's display product lineups



Source: Company data, CMBIGM estimates

Auto technology

- **Mercedes Benz** will release the latest generation of MBUX Virtual Assistant. The system is developed by Mercedes Benz Running on OS onboard operating system. The prototype of CLA class concept cars and electric G-class SUVs (formerly known as QG) will also be showcased for the first time in North America during CES 2024.
- **Honda** is expected to showcase a new global series of electric vehicles and key technologies that illustrate the significant transformation Honda is currently undergoing. Honda announced to introduce 30 new EVs globally by 2030 with a global sales volume of 2 million units.
- **Kia** is expected to announce the redefinition of PBV as a "Platform Beyond Vehicle" and will officially launch its global PBV business at CES 2024. Kia will showcase five PBV concept models, including the first PBV for mass production in 2025. Kia will also showcase Concept EV3, EV4 EV9 and EV6 GT.
- **The "AFEELA"** pure electric car, which Sony and Honda collaborate with, will hold a press conference on 9 Jan. The new vehicle will be equipped with Qualcomm chips with Level 3 autonomous driving capabilities. It will be available for online booking starting in 2025. The vehicle will be produced by Honda's North American factory and will be delivered in North America and Japan from the spring and second half of 2026.
- **Vietnamese car manufacturer, VinFast**, will showcase its latest electric concept car and small electric SUV model VF 3 to global customers. VinFast will also showcase its pure electric VF 9 full-size SUV, which integrates new streaming services into the car and provides new technology firsthand in car experiences.
- **PENG AEROHT**, an affiliate of XPENG, will integrate intelligent vehicles and modern aviation, and share the latest progress on its modular flying car.

Figure 13: Mercedes-Benz's MBUX Virtual Assistant



Source: Company data, CMBIGM estimates

Figure 14: Honda's new electric concept car



Source: Company data, CMBIGM estimates

Figure 15: XPENG AEROHT's Flying Car



Source: Company data, CMBIGM estimates

Figure 16: VinFast's new EV concept in CES 2024



Source: Company data, CMBIGM estimates

Smart home and IoT

- **Samsung** will introduce its latest kitchen products, applications and features, powered by AI and SmartThings connectivity, enabling an ecosystem for better food and kitchen experiences. Samsung also announced a partnership with Tesla in CES 2024, integrating its SmartThings Energy with Tesla API to display information relating to the energy production, storage, and usage.
- **Aqara Green Mi**, a domestic smart home brand, announced that it will once again showcase the charm of smart homes to users with its multiple products in CES.
- **Doodle**, a global IoT developer platform, will present a large number of popular, innovative and innovative products to developers worldwide.
- **Qorvo**, a leading global provider of connectivity and power solutions, announced to showcase its latest Internet of Things (IoT), smart homes, 5G, Wi Fi, ultra wideband (UWB), touch sensors, and power products in CES 2024.

Figure 17: Samsung: food list generated by AI Vision Inside in Bespoke 4-Door Flex Refrigerator



Source: Company data, CMBIGM estimates

Figure 18: Samsung Partners with Tesla for SmartThings Energy



Source: Company data, CMBIGM estimates

Figure 19: Tuya Smart Booth in CES 2024



Source: Company data, CMBIGM estimates

Robotics

- **Samsung** will unveil a new vacuum cleaner lineup with advanced AI, Bespoke Jet Bot Combo, with upgraded AI functions, steam cleaning technology and advanced AI object recognition system. The technology is upgraded from the previous Bespoke Jet Bot AI+sweeping robot, which not only increases the number of identifiable items, but also utilizes 3D sensors to achieve more accurate path navigation.
- **LG** will launch an AI home robot that features an innovative "double legged" design that can move independently, connect and control smart appliances and home IoT devices, and interact with users. Robots can also collect real-time environmental data, including temperature, humidity, and indoor air quality, through built-in cameras, speakers, and various sensors.
- **China Huabao New Energy** will showcase portable energy solutions in CES 2024, including the charging robot "Jackery Explorer 5000", which includes sun tracking function, 600W scalable solar panel, and a solar energy conversion efficiency of 25%.
- **Shift Robotics** will unveil its newest model of robotic shoes, Moonwalkers X, in CES 2024. Moonwalkers X are designed for business/commercial use, where employees walk a lot on-the-job, such as those in the distribution, logistics and warehouse marketplace.
- **Yo Kai Express**, a Silicon Valley-based food technology startup, will bring a new type of Boba robot to integrate a cooking pot inside the device. The built-in cooking function will make it not only a pearl milk tea machine, but also capable of making various cold and hot beverages and meals, from instant oatmeal to protein milkshakes.

Figure 20: Samsung Bespoke Jet Bot Combo robot



Source: Company data, CMBIGM estimates

Figure 21: LG AI smart home robot



Source: Company data, CMBIGM estimates

Figure 22: Jackery Explorer 5000



Source: Company data, CMBIGM estimates

Figure 23: Shift Robotics's Moonwalkers X



Source: Company data, CMBIGM estimates

Figure 24: Peers' valuation

Company	Ticker	Rating	Mkt. Cap (US\$ mn)	Price (LC)	P/E (x)		P/B (x)		ROE (%)		Performance YTD (%)
					FY23E	FY24E	FY23E	FY24E	FY23E	FY24E	
Brand											
Xiaomi	1810 HK	BUY	46,117	14.36	17.4	16.3	2.0	1.8	11.5	11.1	(7.9)
Apple	AAPL US	NR	2,817,848	181.18	29.9	27.4	48.3	38.2	169.4	146.8	(5.9)
Samsung	005930 KS	NR	346,485	76,500.00	46.1	16.3	1.5	1.3	3.2	8.5	(2.5)
LG	066570 KS	NR	12,304	99,100.00	11.9	7.4	0.9	0.8	7.2	10.5	(2.7)
Lenovo	992 HK	NR	16,125	10.16	9.4	15.7	2.5	2.6	30.6	17.0	(7.0)
Dell	DELL US	NR	53,968	75.84	10.1	11.4	-	-	(179.3)	(156.9)	(0.9)
HP	HPQ US	NR	29,678	29.95	9.1	8.7	-	-	(139.1)	(433.6)	(0.5)
ASUSTeK	2357 TT	NR	10,874	453.50	19.9	14.2	1.5	1.5	7.1	9.7	(7.4)
Average					19.2	14.7	9.4	7.7	(11.2)	(48.4)	(4.3)
ODM/EMS											
BYDE	285 HK	BUY	9,856	34.15	17.4	13.9	2.4	2.1	13.6	15.1	(6.7)
Luxshare	002475 CH	BUY	31,322	31.33	20.2	16.0	2.2	2.0	10.9	12.3	(9.1)
Huaqin Tech	688281 CH	NR	2,502	128.88	38.9	28.8	4.2	3.7	11.0	13.1	(5.0)
Hon Hai	2317 TT	NR	45,424	101.50	10.6	9.4	0.9	0.9	8.9	9.4	(2.9)
FII	601138 CH	NR	36,279	13.08	11.0	9.1	1.8	1.6	16.8	17.7	(13.5)
Quanta	2382 TT	NR	26,684	214.00	21.0	16.5	4.5	4.0	21.9	25.5	(4.7)
Wistron	3231 TT	NR	8,837	94.40	22.5	14.5	2.5	2.2	11.5	16.3	(4.3)
Wiwynn	6669 TT	NR	9,539	1,690.00	25.6	17.4	7.1	5.7	28.6	36.0	(7.4)
Average					20.9	15.7	3.2	2.8	15.4	18.2	(6.7)
Structured Components											
BYDE	285 HK	BUY	9,856	34.15	17.4	13.9	2.4	2.1	13.6	15.1	(6.7)
Tongda	698 HK	BUY	106	0.09	4.7	2.9	0.1	0.1	2.3	3.5	(17.5)
TK Group	2283 HK	BUY	152	1.42	5.1	3.7	0.7	0.6	13.3	16.3	0.7
Everwin	300115 CH	NR	1,910	11.37	52.4	19.0	2.3	2.1	2.9	9.6	(14.2)
Lens Tech	300433 CH	NR	8,328	11.97	19.3	14.8	1.3	1.2	6.8	8.4	(9.3)
Chunqiu Elec.	603890 CH	NR	647	10.56	64.8	21.6	1.7	1.6	2.6	7.4	(7.8)
Catcher	2474 TT	NR	4,371	199.00	11.9	17.0	0.8	0.8	6.8	4.6	2.6
Jabil	JBL US	NR	16,220	126.77	14.9	14.0	5.9	12.2	43.5	51.0	(0.5)
Average					23.8	13.4	1.9	2.6	11.5	14.5	(6.6)
Connector											
FIT Hon Teng	6088 HK	BUY	990	1.06	7.1	5.7	0.4	0.4	5.2	6.3	(10.2)
Luxshare	002475 CH	BUY	31,322	31.33	20.2	16.0	2.2	2.0	10.9	12.3	(9.1)
TE	TEL US	NR	41,132	132.35	19.7	17.9	3.7	3.4	19.1	19.2	(5.8)
Amphenol	APH US	NR	56,516	94.46	31.8	29.1	7.1	6.1	24.4	23.7	(4.7)
Average					19.7	17.2	3.3	3.0	14.9	15.4	(7.4)
Optics											
Sunny Optical	2382 HK	HOLD	8,653	61.60	40.6	23.1	2.6	2.4	6.4	10.6	(13.1)
Q Tech	1478 HK	BUY	558	3.68	13.2	6.9	0.8	0.7	5.9	10.3	(17.1)
Cowell	1415 HK	NR	2,240	20.50	33.2	19.9	5.2	4.1	15.2	22.9	(11.1)
Largan	3008 TT	NR	11,116	2,580.00	18.6	17.8	2.1	2.0	11.5	11.5	(10.1)
Genius	3406 TT	NR	1,441	396.00	15.5	14.7	2.1	1.9	13.8	13.7	(5.8)
O-Film	002456 CH	NR	3,557	7.82	-	38.5	8.8	8.2	(7.3)	9.7	(10.2)
LG Innotek	011070 KS	NR	4,004	223,000.00	9.0	6.5	1.1	1.0	12.8	15.6	(6.9)
Average						21.7	18.2	3.2	2.9	8.3	13.5
Acoustics/Haptics											
AAC Tech	2018 HK	HOLD	3,201	20.85	36.7	21.0	1.0	1.0	2.7	4.6	(10.1)
Goertek	002241 CH	BUY	9,260	19.39	45.1	25.2	2.1	2.0	4.6	7.8	(7.7)
Luxshare	002475 CH	BUY	31,322	31.33	20.2	16.0	2.2	2.0	10.9	12.3	(9.1)
Merry	2439 TT	NR	751	106.00	17.0	16.1	1.8	1.7	10.0	10.3	(3.2)
Nidec	6594 JP	NR	23,515	5,696.00	41.0	18.2	2.5	2.1	7.0	12.6	0.0
Average					32.0	19.3	1.9	1.7	7.0	9.5	(6.0)

Source: Bloomberg, CMBIGM

Figure 25: Peers' valuation

Company	Ticker	Rating	Mkt. Cap (US\$ mn)	Price (LC)	P/E (x)		P/B (x)		ROE (%)		Performance YTD (%)
Auto Electronics											
Luxshare	002475 CH	BUY	31,322	31.33	20.2	16.0	2.2	2.0	10.9	12.3	(9.1)
Sunny Optical	2382 HK	HOLD	8,653	61.60	40.6	23.1	2.6	2.4	6.4	10.6	(13.1)
BYDE	285 HK	BUY	9,856	34.15	17.4	13.9	2.4	2.1	13.6	15.1	(6.7)
BOE Varitronix	710 HK	BUY	657	6.48	9.9	7.0	1.1	1.0	12.2	15.4	(8.2)
Intron Tech	1760 HK	BUY	288	2.07	4.3	3.3	0.8	0.7	20.3	20.3	(6.8)
Desay SV	002920 CH	NR	8,668	111.86	41.3	29.7	8.1	6.6	20.3	23.2	(13.6)
Joyson	600699 CH	NR	3,196	16.25	22.2	16.3	1.7	1.5	7.8	9.6	(9.5)
Jingwei Hirain	688326 CH	NR	1,536	91.68	156.2	43.8	2.1	2.0	0.1	5.0	(21.0)
Foryou	002906 CH	NR	2,127	29.06	31.8	23.0	2.8	2.5	9.3	11.4	(17.6)
O-Film	002456 CH	NR	3,557	7.82	-	38.5	8.8	8.2	(7.3)	9.7	(10.2)
LianChuang	002036 CH	NR	1,359	9.11	-	27.0	2.6	2.7	(3.6)	6.3	(10.8)
Average					38.2	22.0	3.2	2.9	8.2	12.6	(11.5)

Source: Bloomberg, CMBIGM

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