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GLOBAL FOUNDATION

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Humanoids

Humanoid Horizons: Humanoids Coming to Your Bloomberg Screen

More humanoid robots and stocks will enter both the labor and equity markets in 2H26, driven by robot companies' push on adoption and IPOs. Capacity is ramping up, creating a demand tailwind for the supply chain.

Key Highlights in May

- **Chinese humanoids are one step closer to IPOs, igniting market interest on humanoids in 2H26:** Several humanoid integrator startups have filed IPO applications this year for onshore A shares or Hong Kong exchange listings. Unitree has taken a step forward with the Shanghai Stock Exchange listing committee set to review its filing on June 1. The listing could happen in July if the process concludes smoothly. Based on Unitree's updated prospectus, revenue growth in 1H26 is expected to slow to 40% YoY, with adjusted net margin at 22-25% vs. ~35% in 2025, on higher R&D and marketing expenses in 1H26 (see below for financial details).
  - *Our take: The humanoid IPO wave will raise market interest in robotics equities. Funds from most of the Chinese humanoids' IPOs will go toward R&D, especially robot models; a lesser amount will be allocated to capacity build. Despite higher R&D/selling expense and fiercer competition likely pressuring integrators' margins, commercialization and volume ramp-up are more important at the current stage. In the mean time, integrators' capacity builds and mass production will support component demand, which is positive for Chinese supply-chain companies.*
- **Figure AI completed a 200-hour, continuous, autonomous warehouse sorting livestream:** Three robots worked in tandem and processed 249,560 packages over nine days, swapping batteries themselves and sorting items at a ~three-second pace. In a 10-hour contest, the robot was only ~1.5% slower than the human on that narrow task.
  - *Our take: The livestream shows progress in humanoid manipulation, especially sorting in a major commercialization scenario. In China, pick-and-place (including sorting, carrying, loading/unloading, etc.) is also regarded as a key adoption scenario, and we expect to achieve some progress there in 2026. However, we need to know if there is still a big gap and significant engineering work yet to be done from the showcased clean environment to a complex real world scenario, and from the narrow task shown to more generalized tasks (e.g., sorting a wide range of items).*

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CHINA INDUSTRIALS

Asia Pacific

Industry View **In-Line**

In this report you will find:

Further comments

Tech Diffusion

A Morgan Stanley Research Key Theme of 2026

Closer to production stage: Tesla produced its final S and X model vehicles at Fremont on May 10; it will transfer production to the Optimus humanoid robot. Figure ?/is that a company or something else? is scaling humanoid production through a dedicated factory system ("BotQ") as it targets a shift from prototypes to high-volume manufacturing. The BotQ facility is designed to produce about 12,000 robots annually in its initial phase, with plans to reach 100,000 units within several years.

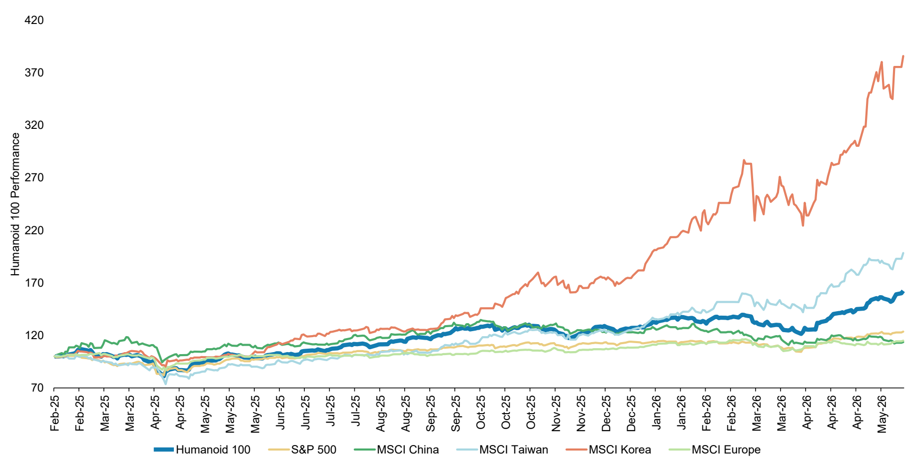
Legacy-startup crossover to drive flywheel: The number of strategic partnerships announced has been increasing, such as Schaeffler/Humanoid, Wuxi Lead/Beijing Humanoid Innovation Centre. Beyond simply supplier/client relationship, these partnerships emphasize on data collection, specific application development, instrumental to develop the humanoid capabilities.

For a copy of our Global Robot Model with forecasts across the full range of embodied AI (not just humanoids), please reach out to your Morgan Stanley representative.

Humanoid 100 update: The equal-weighted Humanoid 100 is up 62% since its inception on February 6, 2025 (adjusting for additions and deletions), outperforming the S&P 500, MSCI Europe and MSCI China, but underperforming MSCI Korea and MSCI Taiwan. Top performers YTD include Intel, Arm Holdings, STMicroelectronics, Samsung Electronics, LG Electronics, Flex, Onsemi, Hyundai, Infineon, and Harmonic Drive Systems.

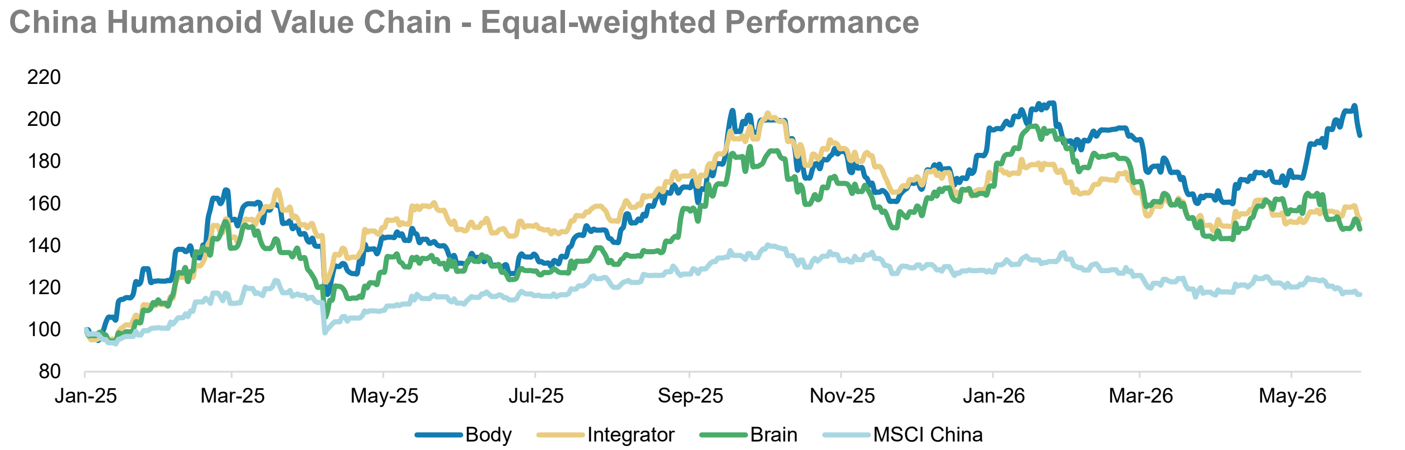
China Humanoid Value Chain update: We see the industry's sentiment as having turned more positive in May 2026 with a series of catalysts, such as China supply chain order updates, Figure AI humanoid's non-stop working livestream, multiple domestic humanoid integrators' IPO filing (Leju, DeepRobotics). As of May 25 close, the China Humanoid Value Chain is up 8% MTD on an equal-weighted basis, led by ”body“ companies'+11% MTD, outperforming MSCI China (-3%).

Exhibit 1: Equal-weighted Humanoid 100 Performance since February 6, 2025 (date list was established)



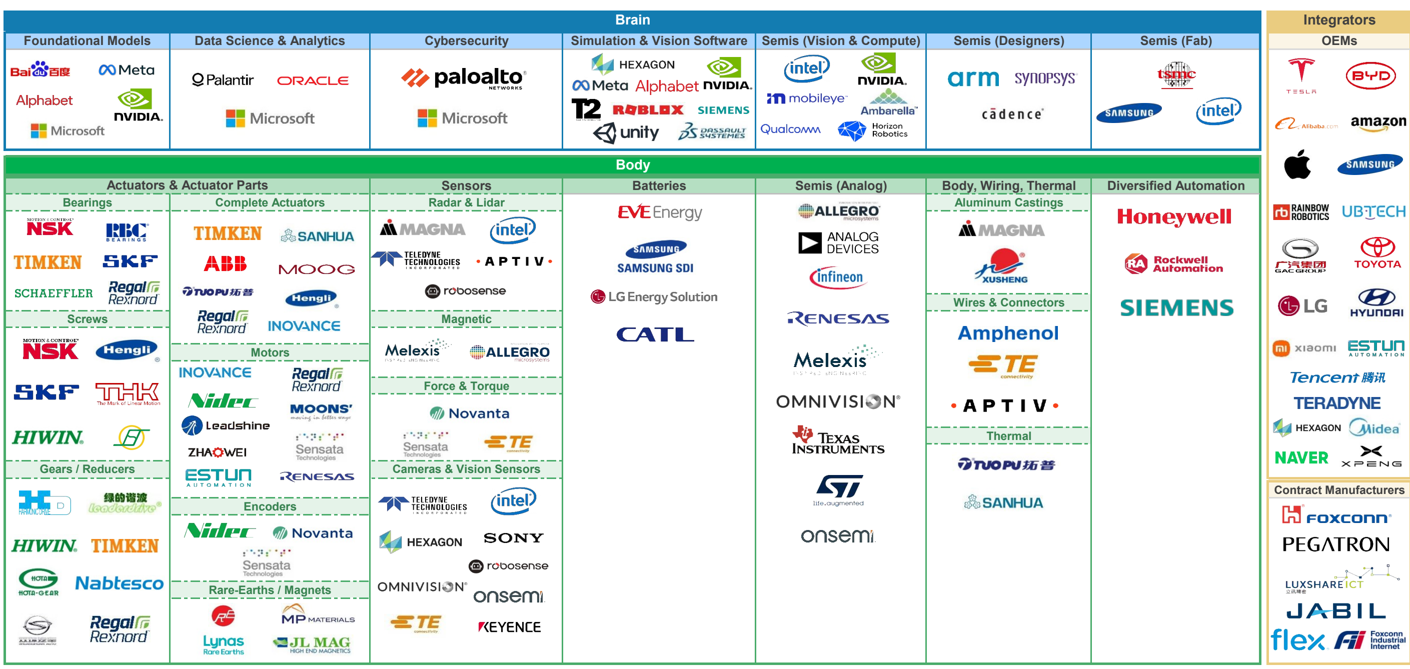
Note: Data as of 5/27/2026 close. Price returns only, does not account for dividend reinvestment or transaction costs. Source: FactSet, Morgan Stanley Research

Exhibit 2: China's Humanoid Value Chain Performance, Equal-weighted



Source: FactSet as of May 28, 2026 close, Morgan Stanley Research. Note: the list of companies are before the change of our China Humanoid Value Chain List as stated below. Results shown represent return exclude dividends, brokerage commissions and transaction costs. These figures are not audited. Past performance is no guarantee of future results

Exhibit 3: The Humanoid 100 – Morgan Stanley's List of Global Humanoid Enablers



Note: Public companies only. Not all inclusive. Source: Morgan Stanley Research

Exhibit 4: China Humanoid Value Chain (including public companies in our stock list - see Exhibit 25 and private players)

Source: Morgan Stanley Research

Links of Interest

For Further Reading on Humanoids & Embodied AI

- Asia Economics: Humanoids and Robots – The Next Chapter in China's Dominance in Global Manufacturing (4 May 2026)
- Wuxi Lead Intelligent: Expansion in Humanoid Field: Strategic Cooperation with Beijing Humanoid Innovation Centre (13 May 2026)
- Mobileye Global Inc: Mentee Robotics: Simulation-First Approach to Humanoid Robotics (31 Mar 2026)
- Podcast | China 3.0: Episode 7: Robotics, Reinvented: How China is Shaping the Future of Intelligent Machines (3 Mar 2026)
- China Industrials: Implications from Unitree IPO (23 Mar 2026)
- Humanoids: Meet Unitree G1 Humanoid Robot (4 Dec 2025)

The Robot Almanac

- Robotics: The Robot Almanac (Vol. 1): AI Gets Physical; Cambrian Explosion of Bots (7 Dec 2025)
  - *See Volume 1 Video Explainer Here*
- Robotics: The Robot Almanac (Vol. 2): How to Train Your Robot; Geopolitics; Rare Earths; Sagan's Prophecy (14 Dec 2025)
  - *See Volume 2 Video Explainer Here*
- Robotics: The Robot Almanac (Vol. 3): Humanoids & Industrial Robots (16 Dec 2025)
  - *See Volume 3 Video Explainer Here*
- Robotics: The Robot Almanac (Vol. 4): Drones & Air Mobility (17 Dec 2025)
- Robotics: The Robot Almanac (Vol. 5): Space & Defense (18 Dec 2025)
- Robotics: The Robot Almanac (Vol. 6): Autonomous Vehicles (21 Dec 2025)
- Robotics: The Robot Almanac (Vol. 7): Brain Computer Interfaces & Other Form Factors (22 Dec 2025)
- Robotics: The Robot Almanac (Vol. 8): Big Tech's Physical AI Journey (28 Dec 2025)

Sector Blue paper/Foundation/Insight

- Robotics: When Factory = Robot (26 Mar 2026)
- Embodied AI: Who's Gonna Make the Bots? Adding Contract Manufacturers to the Humanoid 100 (26 Mar 2026)
- Embodied AI: World Models: AI's Journey from Digital to Physical (22 Mar 2026)
- Global Technology: Humanoid Tech – Grasping the Future (30 Nov 2025)
- China's Emerging Frontiers: Robotics Unleashed, A New Era (16 Jun 2025)
- China's Emerging Frontiers: From Wheels to Walkers – How Autos Morph into Humanoids (18 Jun 2025)
- Humanoids and Global Materials: The robots are coming…for critical minerals (21 May 2025)
- Humanoids: A $5 Trillion Global Market (29 Apr 2025)

- Embodied AI: Humanoid 100 Update: Adding Video Games and Cybersecurity Names (17 Jun 2025)
- Humanoids: The Humanoid 100: Mapping the Humanoid Robot Value Chain (6 Feb 2025)
- Artificial Intelligence: Humanoids: Investment Implications of Embodied AI (26 Jun 2024)

Single Stock Foundation/Insight

- Tesla Inc: Beyond the Wheel – Mapping Tesla's Journey into Physical AI (7 Dec 2025)
- Apple, Inc.: Apple Robotics — What's Cooking In Cupertino's Kitchen? (6 Nov 2025)
- Hyundai Motor: Hyundai's Robotics Ambition (17 Aug 2025)
- Samsung Electronics: Humanoids – From Digital to Physical AI (14 Sep 2025)

AlphaWise Survey

- Humanoids: China Humanoids Survey: High Willingness to Adopt Meets Premature Products (2 Dec 2025)
- Humanoids: China Survey (2): What work are humanoids expected to do? (14 Dec 2025)
- Humanoids: Humanoid Robot Consumer and Intern Surveys: China Enthusiasm, US Divided (4 Aug 2025)

Trip/Meetings Takeaways

- China Industrials - Humanoids: China Summit Feedback 2026 (7 Apr 2026)
- China Industrials: Humanoid Supply Chain Trip Takeaways: The Emerging Gap (28 Jan 2026)
- The Rowdy Robot: The Robots Take Over Las Vegas (8 Jan 2026)
- China Industrials: Asia Pacific Summit 2025 Feedback – Robotics/Humanoids (23 Nov 2025)
- China Industrials: Trip Takeaways – Humanoids: Eyes on Use Case Verification (17 Nov 2025)
- China Industrials: Humanoids: How Far Apart Are Reality and Ideal? (12 Nov 2025)
- Humanoids: WRC 2025 Takeaways: Embracing the Future (10 Aug 2025)

Humanoid Horizons

- Humanoid Horizons: Money Meets Machines (7 May 2026)
- Humanoid Horizons: Can US and China Collaborate on Robots (26 Feb 2026)
- Humanoids: Humanoid Horizons: Gaining Momentum Globally (22 Jan 2026)
- Robotics: Humanoid Horizons: What to Watch for 2026 (19 Dec 2025)
- Humanoids: Humanoid Horizons: Overhyped yet Underappreciated (1 Dec 2025)

The Humanoid Signal

- 2026 Outlook – Humanoids: Commercialization (21 Jan 2026)
- The Humanoid Signal – Broad Verification (5 Feb 2026)
- The Humanoid Signal - How Will the Robot "Brain" Evolve? (26 Feb 2026)
- The Humanoid Signal - Robot Fingers Crossed (6 Mar 2026)
- The Humanoid Signal - Going Global, Capturing Early Ground (14 May 2026)

The Rowdy Robot

- Video | The Rowdy Robot: Car Shaped Robots: Do I Drive Anymore? (21 May 2026)
- Video: The Rowdy Robot: i=wr^2, Clankers (12 May 2026)
- The Rowdy Robot: The National Security Robot-Space Matrix (30 Apr 2026)
- The Rowdy Robot: Who's Gonna Fix the Clankers? (28 Apr 2026)
- The Rowdy Robot: What Will Our Kids Do? (31 Mar 2026)

Relevant Private Company Profiles

- Robotics: Agile Robots: Das Bot (17 Mar 2026)
- Embodied AI: AI Robotics Disruptors: Skild AI (23 May 2025)
- Embodied AI: Humanoid Disruptors: 1X Technologies (7 Apr 2025)
- Embodied AI: Humanoid Disruptors: Apptronik (24 Mar 2025)
- Embodied AI: Humanoid Disruptors: Unitree - Humanoids Starting at $16K (28 Jan 2025)
- Embodied AI: AI Robotics Disruptors: Physical Intelligence (19 Dec 2024)

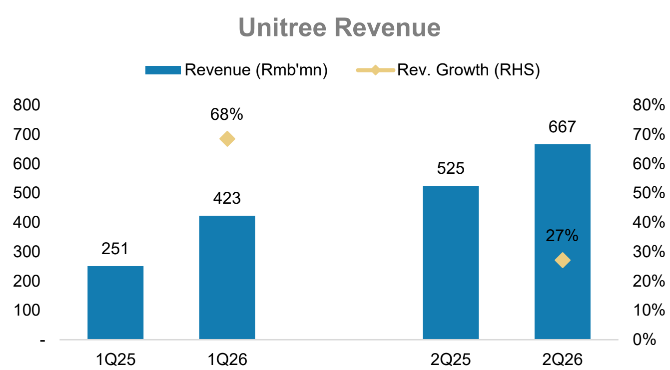
Recent Humanoid Updates and Developments

Financing

We list the key reported financial data for the three private humanoid integrators and UBTECH (9880.HK, NC), as these numbers should help investors understand the early commercial progress of humanoid robots.

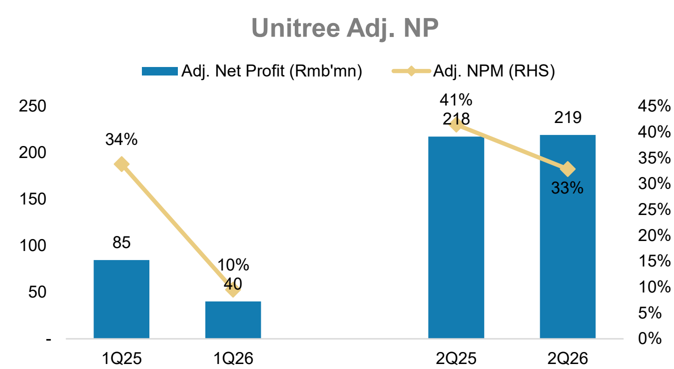
- **Unitree 1Q26 net profit down 48% YoY, pending IPO review on June 1:** The Shanghai Stock Exchange announced that its Listing Review Committee will review Unitree Robotics on June 1.
  - Per the updated prospectus released in May, Unitree 1Q26 revenue was up 68% YoY, but adjusted net profit is down 53% YoY. According to the company, the decline in adjusted net profit was mainly due to increasing selling expenses from its CCTV's Spring Gala appearance, and rising R&D expenses (+38mn YoY).
  - Unitree also provided 2Q26 guidance, revenue of +20% to +34% and adjusted net profit of -10% to +12%.
  - *See our previous report for Implications from Unitree IPO.*

Exhibit 5: Unitree Revenue



Source: Company data, Morgan Stanley Research. Note: 2Q26 number represent the mid-point of company's guidance.

Exhibit 6: Unitree Adjusted Net Profit



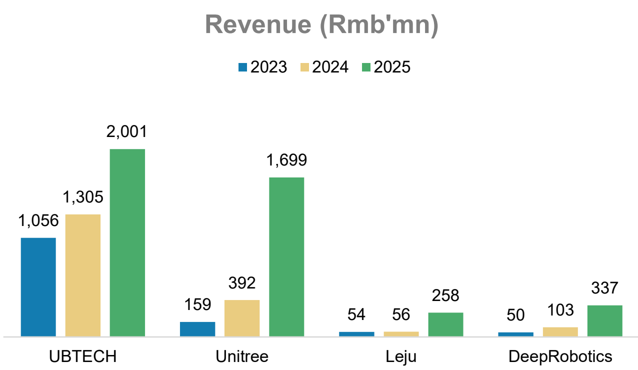
Source: Company data, Morgan Stanley Research. Note: 2Q26 number represent the mid-point of company's guidance.

- **Leju filed an IPO application, targeting to raise Rmb2.6bn:** Leju's main products include humanoid robot lines such as Kuavo (full-sized bipedal/wheel-based, 148-200cm high), Roban (small-sized bipedal, 69-124cm) and Aelos (education, 35cm high). The potential IPO proceeds of Rmb2.6bn will be used for a humanoid robot industrialization base, embodied-AI R&D center and large-scale dataset construction.
- **DeepRobotics filed IPO application aims to raise Rmb2.5bn:** Unlike Leju and UBTECH, DeepRobotics' focus is on quadruped robots. It shipped 2,908 units in 2025. It has also developed humanoid DR series, but revenue was small at just one unit. According to the company, it was the world's second-largest quadruped robot player in 2024-25, second only to Unitree, but ahead of Boston Dynamics. The company aims to raise Rmb2.5bn for embodied algorithm and model, robot body and solutions, industrialization product, and manufacturing base construction.
- **Linkerbot is reportedly looking for a potential new financing round targeting a**

valuation of up to US$6bn: The company had announced a B+ financing round in late April with a valuation of US$3bn, which was backed by Ant Group, HongShan, state-backed Zhongguancun Science Park Fund, Bank of China Asset Management and Fosun Capital. CEO Alex Zhou said in a Reuters' interview, that the company plans to scale monthly production to 10k units from 5k currently, with over 80% market share.

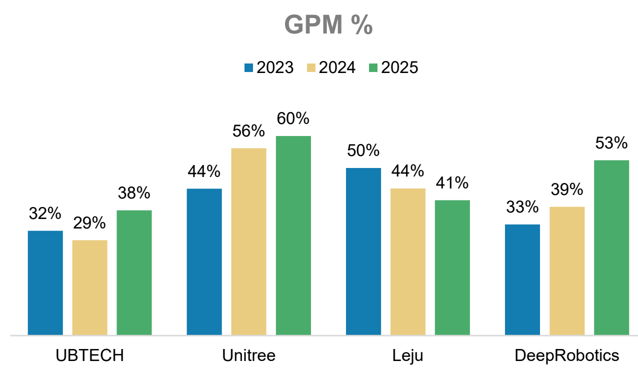
- *We met with Linkerbot during our China Summit. Linkerbot stated its shipment target of 50-100k dexterous hand units, implying 5-10x YoY growth. See our takeaways here.*

Exhibit 7: China Integrator Revenue



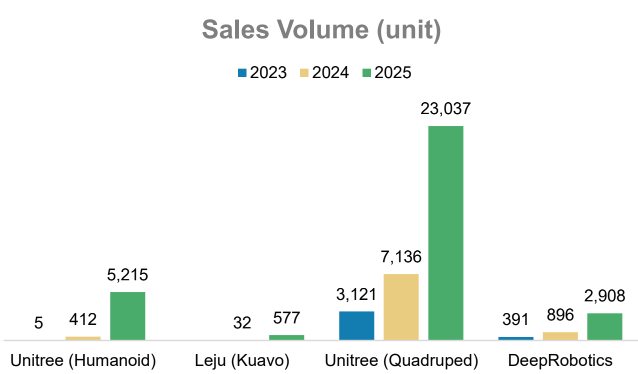
Source: Company data, Morgan Stanley Research.

Exhibit 8: China Integrator Gross Margin



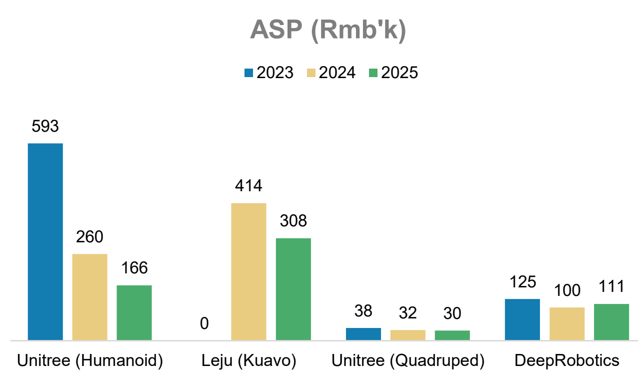
Source: Company data, Morgan Stanley Research.

Exhibit 9: China Integrator Sales Volume



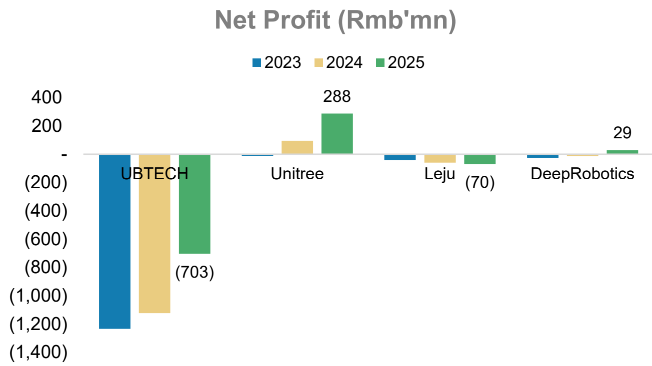
Source: Company data, Morgan Stanley Research. Note: Unitree has delivered 5,511 units of humanoid in 2025, but some were not signed off and recognized as revenue.

Exhibit 10: China Integrator ASP



Source: Company data, Morgan Stanley Research.

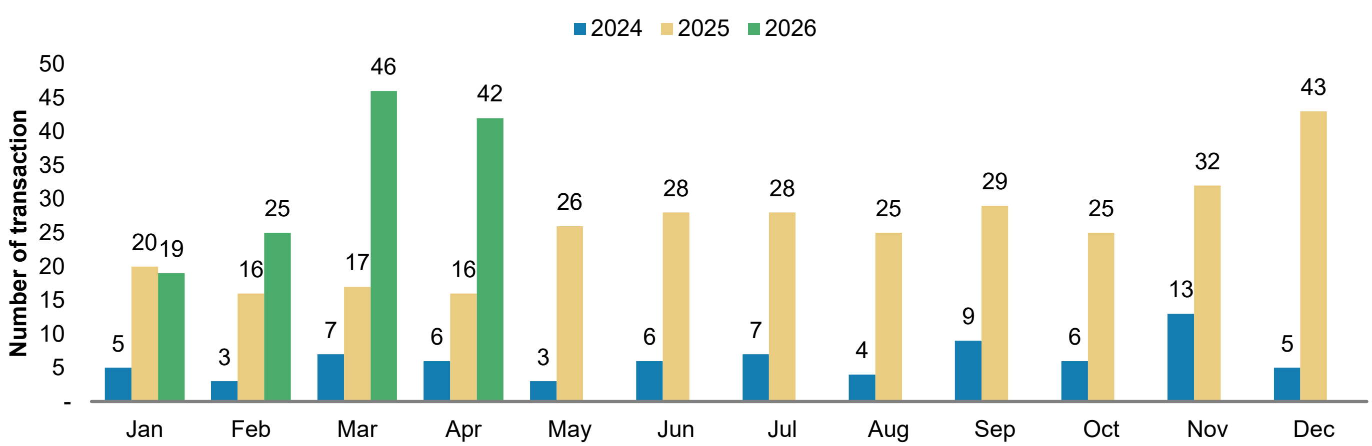
Exhibit 11: China Integrator Net Profit



Source: Company data, Morgan Stanley Research.

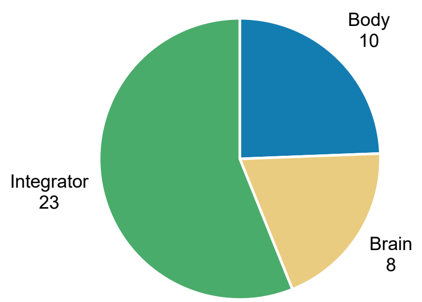
- **Rivian spin-off of Mind Robotics raised US$400mn at US$3.4bn valuation** (vs. Series A round's US$2bn valuation in March)**.** This financing round was led by Kleiner Perkins, bringing total investment to over US$1bn. The company is targeting AI-powered robots for manufacturing, and Robotics Report noted that Rivian is among its early customers.
- **RobotEra has secured over US$200mn** in a financing round led by SF Group, alongside with IDG Capital, Hillhouse Investment, CICC Capital, etc. Commercially, it initiated thousand-unit shipments in 2Q26, implying >300% YoY growth and is deploying its humanoid units across 10 logistics centers in partnership with China Post and SF Group. The funding will be utilized to advance the integration of autonomous hardware and AI capabilities while scaling production to meet expanding industrial demand.

Exhibit 12: Monthly Funding Activity – Chinese Humanoid Companies



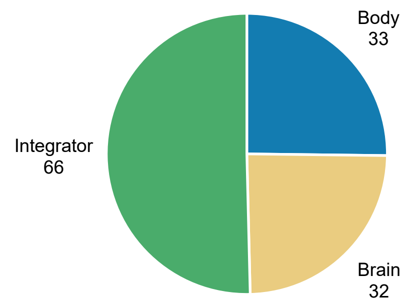
Note: Includes all notable funding disclosed based on our knowledge and research. However, some may still not be captured. We have updated the number of transactions in previous months to account for transactions announced after our previously published Humanoids Horizon report. Source: GGII, Company announcements, Morgan Stanley Research

Exhibit 13: China – Apr-26 Funding Activity Breakdown



Source: GGII, Morgan Stanley Research

Exhibit 14: China – 4M26 Funding Activity Breakdown



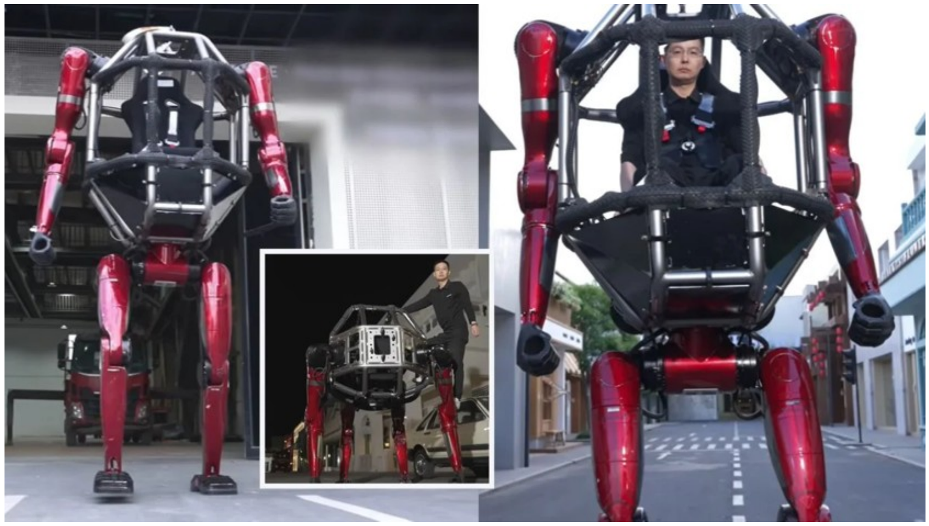
Source: GGII, Morgan Stanley Research

New Robot Models and Hardware Improvements

- **Unitree unveiled the GD01, the world's first production-ready, manned transformable mecha.** Priced at Rmb3.9mn (~US$650,000), the 2.7-meter-tall, 500 kg high-strength alloy machine accommodates a human pilot within a chest-mounted cockpit. GD01 can transition from a bipedal walking stance into a quadruped mode to navigate uneven terrain. Beyond its mobility, the machine demonstrates heavy-duty force capabilities, such as smashing through brick barriers and demolishing cinder blocks, marking it a good platforms for demanding, hazardous, or industrial environments.
- **Genesis AI unveils GENE-26.5 robotic foundation model for manipulation tasks**. The system features a proprietary dexterous hand and tactile-sensing glove to enable efficient, human-demonstration-based learning for complex, long-horizon tasks across commercial platforms, capable of contact-rich tasks such as cooking, lab automation, wire harnessing, multi-object grasping, and other dexterous activities.

- **ABB Robotics launches PickMaster Lite to simplify vision-guided picking for OEMs and system integrators.** By packing vision-guided picking, conveyor tracking, and motion control into an intuitive, task-based interface with pre-configured templates, the platform removes the requirement for specialized programming expertise. ABB said the product can cut development effort by up to 30% and commissioning time by up to 25%, while supporting vision-guided picking, conveyor tracking, motion control, RobotStudio/digital twin integration, and OmniCore connectivity.

Exhibit 15: Unitree founder and CEO Wang Xingxing, operating the GD01



Source: Unitree

Partnership

- **UK-based Humanoid announced a strategic technology partnership with Schaeffler** to integrate humanoid robots into live manufacturing environments. The partnership includes supply agreement for actuators and purchase agreement for humanoids for Schaeffler's global production network over the next five years. Together, both companies are collecting robot-specific and application-related data, to train AI models and continually optimize robot performance. The first systems is expected to deploy by end-of-2026, with initial phase running from December 2026 to June 2027 at two Schaeffler sites in Germany. Reuters reported that the plan could reach 1,000–2,000 robots by 2032, though contract value was undisclosed.
- **FANUC has partnered with Google to accelerate Physical AI integration into its industrial robotics platform.** Using Google Cloud's Gemini models and Intrinsic's Flowstate software, the collaboration focuses on adding natural language instruction capabilities to factory hardware. This setup allows operators to command robots via text or speech, reducing the need for traditional programming code. The initial implementation enables FANUC robots to independently detect, sort, and pick unorganized manufacturing components from storage bins.
- **Wuxi Lead has announced a strategic cooperation agreement with Beijing Humanoid Robot Innovation Center** (which makes Tiangong humanoids). Key cooperation scope includes robot manufacturing, humanoid applications in new energy manufacturing, industrial data collection, etc. While the near-term focus for Wuxi Lead's stock price remains battery equipment order sustainability, we think this news is positive, along with the company's humanoid robot equipment order from a US-based client, implying two demand drivers as both enabler and adopter.
    - *See our takeaways here - Expansion in Humanoid Field: Strategic Cooperation with Beijing Humanoid Innovation Centre.*

Adoption

- **Japan Airlines begins Haneda humanoid robot trial for airport ground operations.** Japan Airlines and GMO AIR are launching Japan's first humanoid robot demonstration trial for airport ground handling, commencing in May 2026 at Haneda Airport. Media reports stated that Unitree humanoids would be used for luggage/cargo-related support, with the broader initiative running into 2028.
- **Humanoid use case for waste sorting.** Built by RealMan Robotics in China, Alpha (Automated Litter Processing Humanoid Assistant) was being used to sort the rubbish. It's being adapted for real-world recycling operations by the British firm TeknTrash Robotics, although this is not up to speed yet and still in training/human operators.
- **China's State Grid placed the largest robotics order on record.** The plan allocates Rmb6.8bn to procure 8,500 embodied AI systems, including 500 humanoid robots for ultra-high-voltage (UHV) maintenance, 5,000 quadruped inspection dogs.

Exhibit 16: Alpha is being trained to identify and sort waste

Source: BBC.

Exhibit 17: The humanoid robots will be trialled at Haneda Airport from May 2026

Source: Japan Airlines

Policy

- **"Robots for America" coalition launches to push US robotics policy.** Robots for America (RFA), launched at the SCSP AI+ Expo with 21 inaugural members. The group was formed after engagement with the White House OSTP, Department of Commerce, SBA, and US Senate offices, and proposed policy priorities around robotic trials, lowering financial risk, tax treatment, permitting and regulatory approvals, workforce development, and autonomous logistics.

China – Policy Support Overview

Humanoid and embodied intelligence became a clear national priority. Since MIIT issued its Guiding Opinion on Humanoid Innovative Development in February 2023, local governments have released a wide range of policies to support industry development, set up funds for humanoid and embodied-AI ventures, and establish institutions and alliances to promote industry cooperation. In 2025, NPC, Li Qiang, the Chinese Premier, first referenced it in the government work report. Subsequently, In the 15th FYP announced on 2026 NPC, robotics as a strategic emerging industry for the first time, placing it alongside categories including next-gen IT, NEV, biomedicine, and aerospace.

We see continued government leadership and efforts on supporting this frontier industry. As commercialization begins in 2026, we expect sustained support at both the national and local levels to accelerate development and reinforce China's leadership in this sector, critical to push early adoption and drive the commercialization flywheel. While the 15th FYP does not provide quantitative targets, this aligns with past practice. We expect the government to follow with a sector-specific plan.

Exhibit 18: China's national/provincial/municipal governments have launched a series of policies to support humanoid/embodied AI development...

Announced Date	Policy/Government Plan	Region	Goals/Policy
Dec-21	14th Five-Year-Plan Robotics Industry Development Plan	Nationwide	To boost industry innovation, breakthrough industry bottlenecks, focus on high-end and extend applications
Jan-23	17 govt. departments issued Robot+ application action plan	Nationwide	Robot+ application action plan, aiming to achieve 100 breakthroughs in robotics technologies and 200 innovative applications by 2025
Nov-23	MIIT's Guiding Opinion on Humanoid Innovative Development	Nationwide	Humanoids to become a key engine for economic growth
Apr-24	Jiangsu Robotics Industry Innovation Development Action Plan	Jiangsu	Core robotics industry to exceed Rmb25bn in scale, with robot density in key manufacturing sectors above 500 units per 10,000 workers
May-24	Shandong Implementation Plan for Humanoid Industry Development 2025-2027	Shandong	To develop 10 core companies with production value of more than Rmb100mn each
May-24	Anhui Action Plan for Humanoid Industry Development 2024-2027	Anhui	To establish humanoid industry ecosystem in 2027
Sep-24	Zhangjiang Implementation Plan for Humanoid Industry Development 2024-2027	Zhangjiang	Production to reach 20k units in 2027, with core value chain reaching Rmb20bn
Oct-24	Chongqing supporting policies for embodied intelligence industry	Chongqing	To break through key technologies and provide necessary capital support
Dec-25	Hangzhou supporting policies for humanoid industry	Hangzhou	To provide R&D subsidies up to Rmb5mn, financing interest subsidy, procurement subsidies up to Rmb5mn, and sale bonuses of Rmb1mn
Feb-25	Beijing Action Plan for Embodied Intelligence Innovation and Industry Development 2025-2027	Beijing	To develop at least 50 key companies across value chain with at least 50 mass-production product
Mar-25	Shenzhen Action Plan for Embodied Intelligence Innovation and Industry Development 2025-2027	Shenzhen	To develop 10 core companies with annual revenue exceeding Rmb10bn, with total industry size reaching Rmb100bn
Apr-25	Establishing national standards	Nationwide	To establish national standards for humanoids, covering dexterous operations, multi-robot collaboration and related areas
May-25	Zhuhai supporting policies for AI and robotics industry	Zhuhai	To provide subsidies on robotics technology R&D, including R&D subsidies up to Rmb30mn and application subsidies up to Rmb500k
Jun-25	Wuhan 3-year plan and policies for Humanoid Industry	Wuhan	To provide R&D subsidies up to Rmb60mn and dual-side subsidies for humanoid deployment, up to Rmb1mn each
Jul-25	Shandong Action Plan for Robotics Industry High Quality Development 2025-2027	Shandong	To subsidize Rmb8mn and Rmb3mn for integrators (revenue >Rmb50mn) and suppliers (revenue >Rmb20mn), respectively, and Rmb2mn per application
Aug-25	Beijing's comprehensive supporting policies for humanoid robots	Beijing	To reach annual production capacity of 10k units by 2027, with subsidies across the entire value chain
Aug-25	Shanghai Embodied Intelligence Industry Development Implementation Plan	Shanghai	To scale the industry to Rmb50bn by 2027, with subsidies of 30% for model R&D, 20% for adoption projects, and 50% for ecosystem projects
Aug-25	Artificial Intelligence (AI) Plus Initiative	Nationwide	To achieve extensive and deep AI integration, with intelligent terminal penetration reaching 70% by 2027
Sep-25	Pilot list for intelligent elderly care service robots	Nationwide	10 application scenarios including emotional companionship and daily care, with at least 200 units deployed for home-based elderly care
Sep-25	Hangzhou Action Plan for AI terminal industry development 2025-27	Hangzhou	To scale the embodied robotics industry above Rmb20bn and related industries above Rmb30bn by 2027
Oct-25	The 15th FYP outline	Nationwide	"Strategic emerging sectors" expanded to include humanoids and related fields
Nov-25	Formation of The Standardization Technical Committee for Humanoid Robots	Nationwide	To develop and implement standards for humanoids, covering basic features, safety, key technologies, components, and applications
Nov-25	NDRC guidance	Nationwide	To establish standards and an entry/exit mechanism to foster fair competition and support technology and infrastructure development
Mar-26	The 15th Five-Year Plan (15th FYP)	Nationwide	Named robotics as a strategic emerging industry for the first time
Mar-26	Humanoid Robots and Embodied Intelligence Standardization	Nationwide	Comprising six key elements, basic commonality, intelligent computing, limbs & components, systems, application, safety and ethics

Note: Includes all notable policies disclosed based on our knowledge and research. However, some may still not be captured. Source: Government Announcements, Morgan Stanley Research,

Exhibit 19: ...With a number of funds totaling ~Rmb187bn providing capital for industry development

Announced Date	Fund	Size	Remarks
Jan-25	Beijing Robotics Industry Development Investment Fund	Rmb10bn	Focus on robotics, supply chain, and value chain innovations
Jun-25	National-Local Joint Innovation Centre for Humanoid -Industry Fund	Rmb10bn	Focus on humanoid value chain
Jul-25	Shanghai Humanoid AI Fund	Rmb1bn	Focus on humanoid value chain
Sep-24	Henan Computing Power Industry Fund	Rmb10bn	Focus on digital infra, AI large model, embodied AI, etc.
Oct-24	Tangshan High-tech Robotics Innovation Venture Capital Fund	Rmb200mn	Invests in technology companies in the Angel period and early to mid-term, with the focus on robotics and related fields
Jan-25	Ganzhou-Huangpujiang Intelligent Robotics Industry Fund	Rmb1bn	Led by Jiangxi Provincial Government
Feb-25	Shenzhen AI and Robotics Industry Fund	Rmb10bn	Focus on AI and robotics industries
Feb-25	Shenzhen Policy Fund	Rmb4.5bn	Various subsidies for model and scenarios training, open for application in Mar-25
Feb-25	Beijing Government Investment Fund	Rmb100bn	Focus on AI and robotics industries
Mar-25	Guangdong Investment Fund	Rmn10bn	Focus on AI and robotics industries
Mar-25	Hefei Future Industry Fund	Rmb10bn	Focus on robotics industries, as well as additional Rmb100mn subsidies for robotics R&D
Jun-25	Hong Kong Innovation and Technology Industry-Oriented Fund	HKD10bn	Focus on AI, robotics and emerging industries
Jun-25	Wuhan Humanoid Industry Investment Fund	Rmb1bn	To invest in seed/angel round of humanoid companies
Jun-25	Hubei Provincial AI and Robotics Mother Fund	Rmb10bm	-
Total		~Rmb187bn	

Note: Includes all notable funds disclosed based on our knowledge and research. However, some may still not be captured. Source: Government Announcements, Morgan Stanley Research

Humanoid 100 Performance

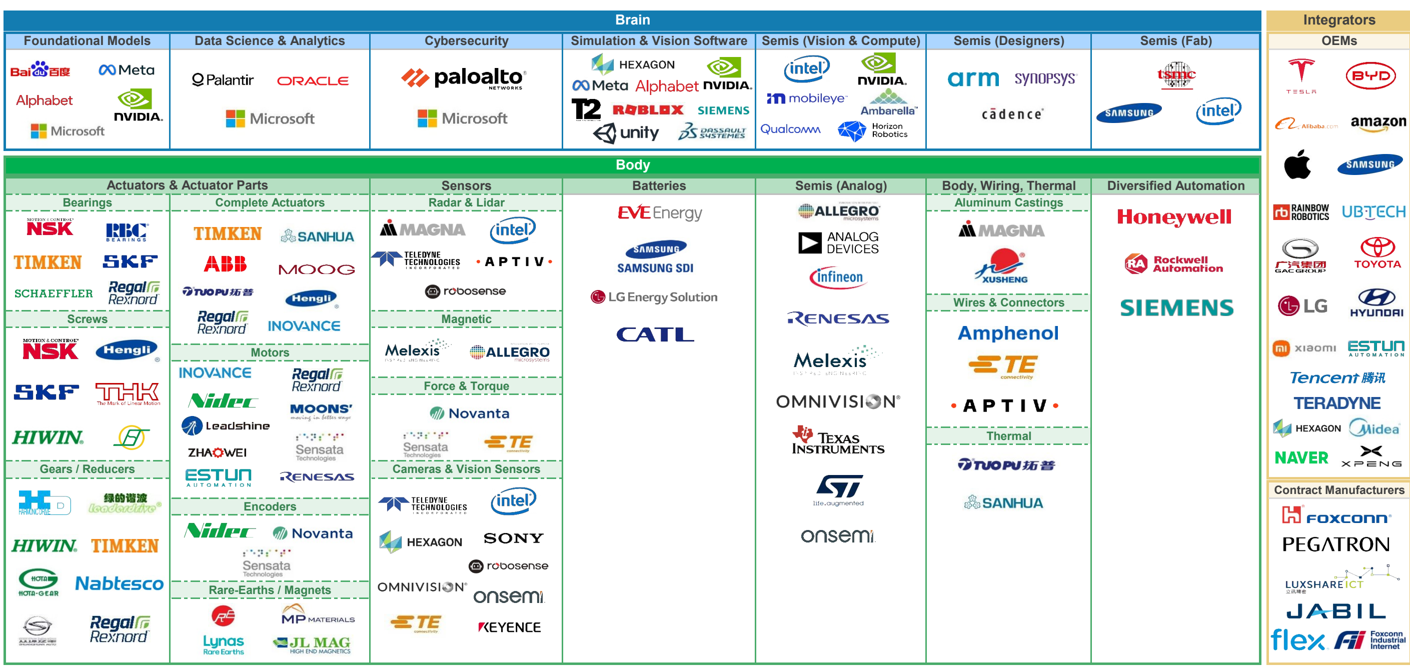
The Humanoid 100 is Morgan Stanley's list of public companies currently involved in or otherwise materially exposed to the humanoid market. We compiled the list through a mix of discussions with our global team of analysts, conversations with clients on their preferred names to play, and our own proprietary research to find names that are involved in the value chain. We then divided the names into **Brain** (Semis/Software), **Body** (Industrial Components), and **Integrators** (Developing Full Humanoids). For every name in the Humanoid 100, we include details on size/liquidity, core business competencies, rationale for inclusion, and current humanoid involvement if applicable.

For a copy of the underlying Humanoid 100 database or our Global Humanoid TAM model, please reach out to your Morgan Stanley representative.

See Initial Note: Humanoids: The Humanoid 100: Mapping the Humanoid Robot Value Chain (6 Feb 2025)

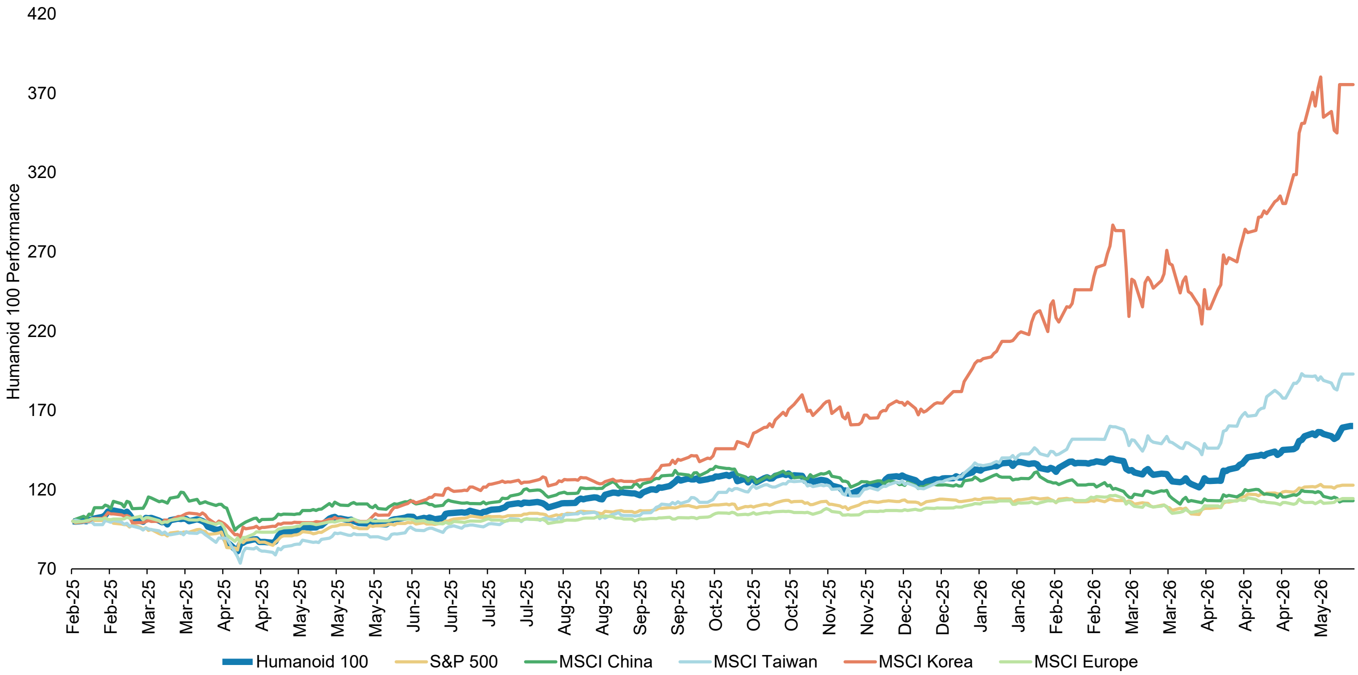
See Latest Update: Embodied AI: Who's Gonna Make the Bots? Adding Contract Manufacturers to the Humanoid 100 (26 Mar 2026)

Exhibit 20: The Humanoid 100- Morgan Stanley's List of Global Humanoid Enablers



Note: Public companies only. Not all inclusive. Source: Morgan Stanley Research

Exhibit 21: Equal-Weighted Humanoid 100 Performance since February 6, 2025 (Date List was Established)



Note: Data as of 5/27/2026 close. Price returns only, does not account for dividend reinvestment or transaction costs. Source: FactSet, Morgan Stanley Research.

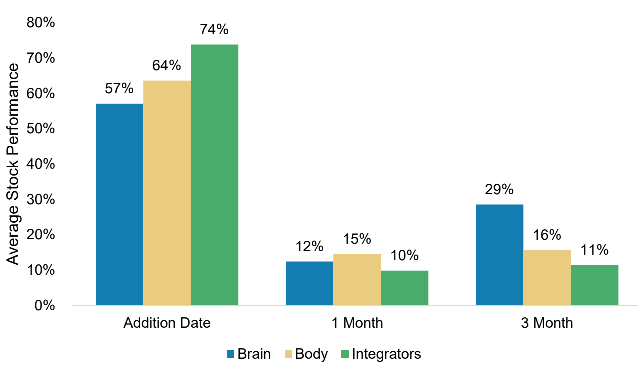
Exhibit 22: Top and Bottom Performing Stocks Since Each Stock's Date of Addition to the Humanoid 100 List

Top Performing Stocks (Since Addition Date)					
Rank	**Company**	**Date Added**	**Ticker**	**Country**	**Performance**
1	Intel	2/6/2025	INTC-US	USA	+528%
2	Samsung Electronics	2/6/2025	005930-KR	Korea	+455%
3	Foxconn Industrial Internet (FII)	2/6/2025	601138-CN	Taiwan	+266%
4	Hyundai	2/6/2025	005380-KR	Korea	+233%
5	Teradyne	2/6/2025	TER-US	USA	+229%
6	Flex	2/6/2025	FLEX	USA	+229%
7	STMicroelectronics	2/6/2025	STM-US	Switzerland	+198%
8	Lynas Rare Earths	2/6/2025	LYC-AU	Australia	+190%
9	LG Electronics	2/6/2025	066570-KR	Korea	+180%
10	MP Materials	2/6/2025	MP-US	USA	+170%

Bottom Performing Stocks (Since Addition Date)					
Rank	**Company**	**Date Added**	**Ticker**	**Country**	**Performance**
1	Roblox	6/17/2025	RBLX-US	USA	(55%)
2	Dassault Systemes	2/6/2025	DSY-FR	France	(54%)
3	Mobileye	2/6/2025	MBLY-US	USA	(38%)
4	Xiaomi	2/6/2025	1810-HK	China	(30%)
5	Hexagon	2/6/2025	HEXA.B-SE	Sweden	(21%)
6	GAC Group	2/6/2025	2238-HK	China	(20%)
7	Robosense	2/6/2025	2498-HK	China	(18%)
8	Hota	2/6/2025	1536-TW	Taiwan	(16%)
9	Moons Electric	2/6/2025	603728-CN	China	(14%)
10	Pegatron	2/6/2025	4938-TW	Taiwan	(14%)

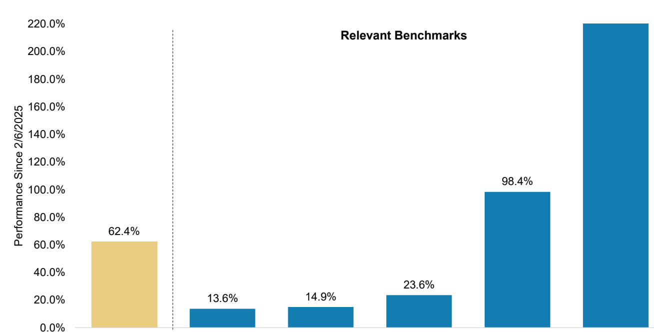
Source: Data as of 5/27/2026 close. Price returns only, does not account for dividend reinvestment. Source: FactSet, Morgan Stanley Research

Exhibit 23: Average Stock Performance across Brain, Body, and Integrator Categories



Note: Data as of 5/27/2026 close. Price returns only, does not account for dividend reinvestment or transaction costs. Source: FactSet, Morgan Stanley Research.

Exhibit 24: The equal-weighted Humanoid 100 is up 62% since February 6, 2025 (adjusting for additions and deletions), outperforming the S&P 500, MSCI Europe, MSCI China, but underperforming MSCI Taiwan and Korea



Note: Data as of 5/27/2026 close. Price returns only, does not account for dividend reinvestment or transaction costs. Source: FactSet, Morgan Stanley Research.

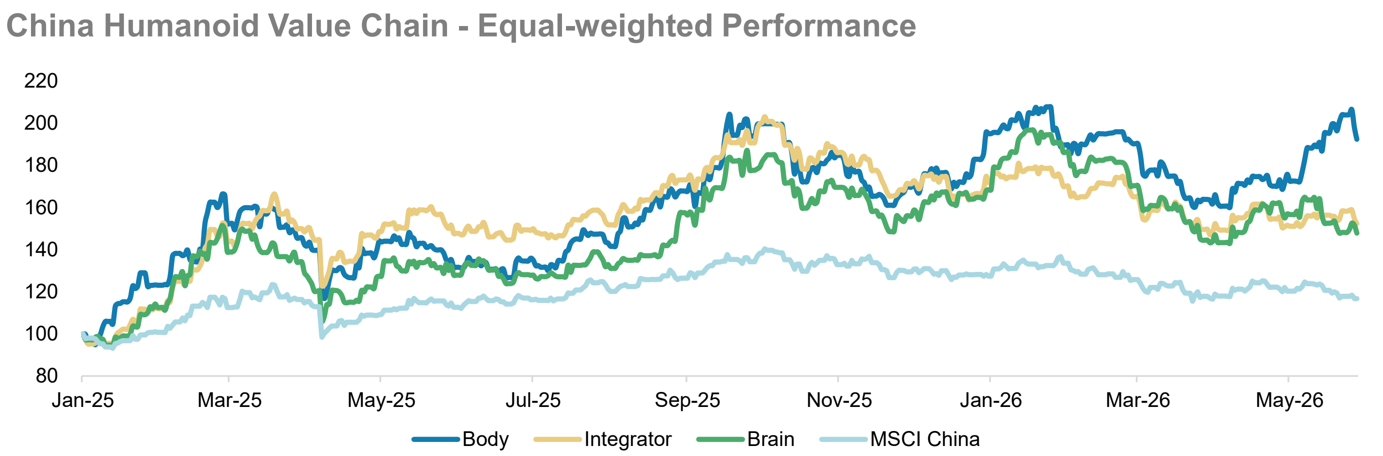
Exhibit 25: Performance Across Each Stock in the Humanoid 100 List

General						Trading Data		Performance					
Company	Date Added	Ticker	Country	Analyst	MS Rating	Mkt Cap ($mn)	Price ($)	Addition Date	1 Month	3 Month	6 Month	1 Year	YTD
Intel	2/6/2025	INTC-US	USA	Joseph Moore	Equal-Weight	612,016	121.77	528%	44%	167%	200%	498%	230%
Arm Holdings	2/6/2025	ARM-US	UK	Lee Simpson	Equal-Weight	322,083	302.71	81%	52%	138%	123%	123%	177%
STMicroelectronics	2/6/2025	STM-US	Switzerland	Lee Simpson	Overweight	60,216	67.75	198%	36%	102%	195%	171%	161%
Samsung Electronics	2/6/2025	005930-KR	Korea	Shawn Kim	Overweight	1,299,715	199.29	455%	35%	38%	198%	436%	150%
LG Electronics	2/6/2025	066570-KR	Korea	Shawn Kim	Equal-Weight	26,976	150.05	180%	61%	55%	163%	217%	145%
Flex	2/6/2025	FLEX	USA	NC		53,414	145.79	229%	67%	131%	147%	246%	141%
Onsemi	2/6/2025	ON-US	USA	Joseph Moore	Equal-Weight	48,945	124.89	138%	34%	88%	149%	191%	131%
Hyundai	2/6/2025	005380-KR	Korea	Young Suk Shin	Overweight	118,105	450.49	233%	22%	0%	159%	264%	128%
Infineon	2/6/2025	IFX-DE	Germany	Lee Simpson	Overweight	118,856	91.28	111%	49%	72%	116%	128%	108%
Harmonic Drive Systems	2/6/2025	6324-JP	Japan	Lisa Jiang	Equal-Weight	4,567	48.24	61%	62%	69%	149%	134%	103%
Renesas	2/6/2025	6723-JP	Japan	Kazuo Yoshikawa	Overweight	49,008	27.01	87%	48%	45%	133%	145%	101%
Hiwin Technologies	2/6/2025	2049-TW	Taiwan	Derrick Yang	Overweight	4,370	12.35	20%	29%	69%	101%	74%	100%
Teradyne	2/6/2025	TER-US	USA	Shane Brett	Equal-Weight	58,833	375.83	229%	-1%	17%	107%	368%	94%
THK	2/6/2025	6481-JP	Japan	Lisa Jiang	Overweight	5,273	47.07	99%	29%	33%	88%	91%	87%
Allegro Microsystems	2/6/2025	ALGM-US	USA	Joseph Moore	Overweight	9,125	49.00	96%	19%	34%	84%	89%	86%
Texas Instruments	2/6/2025	TXN-US	USA	Joseph Moore	Underweight	288,909	317.45	73%	20%	50%	89%	72%	83%
LeaderDrive	2/6/2025	688017-CN	China	Sheng Zhong	Overweight	8,548	46.63	79%	52%	36%	115%	174%	65%
Jabil	2/6/2025	JBL	USA	NC		39,182	371.38	124%	12%	40%	76%	121%	63%
Analog Devices	2/6/2025	ADI	USA	Joseph Moore	Overweight	203,057	416.88	101%	9%	17%	57%	93%	54%
Lynas Rare Earths	2/6/2025	LYC-AU	Australia	Shannon Sinha	Equal-Weight	13,581	13.49	190%	1%	0%	31%	138%	52%
Sensata	2/6/2025	ST-US	USA	NC		7,346	50.51	98%	22%	35%	57%	92%	52%
Timken	2/6/2025	TKR-US	USA	Angel Castillo	Overweight	8,837	127.16	56%	19%	17%	56%	83%	51%
Rainbow Robotics	2/6/2025	277810-KR	Korea	NC		9,036	465.80	87%	5%	-19%	61%	162%	49%
Regal Rexnord	2/6/2025	RRX	USA	NC		13,714	206.01	44%	-2%	-7%	41%	50%	47%
Nabtesco	2/6/2025	6268-JP	Japan	Lisa Jiang	Equal-Weight	4,044	34.51	105%	9%	8%	62%	130%	47%
Melexis	2/6/2025	MELE-BE	Belgium	Nigel van Putten	Equal-Weight	3,814	96.50	53%	19%	46%	57%	41%	45%
Moog	2/6/2025	MOG.A	USA	Kristine Liwag	Equal-Weight	10,873	343.18	77%	12%	2%	49%	87%	41%
TSMC	2/6/2025	TSM-US	Taiwan	Charlie Chan	Overweight	2,192,481	422.73	101%	8%	13%	45%	116%	39%
Qualcomm	2/6/2025	QCOM-US	USA	Joseph Moore	Underweight	246,004	233.40	38%	56%	64%	39%	58%	36%
Novanta	2/6/2025	NOVT-US	USA	NC		5,752	161.51	9%	25%	20%	42%	32%	36%
Leadshine	2/6/2025	002979-CN	China	NC		2,627	8.41	43%	33%	44%	44%	24%	35%
Palo Alto Networks	6/17/2025	PANW-US	USA	Keith Weiss	Overweight	202,752	248.47	23%	37%	67%	31%	32%	35%
Keyence	2/6/2025	6861-JP	Japan	Yoshinao Ibara	Equal-Weight	114,378	471.61	20%	2%	14%	41%	22%	33%
Schaeffler	2/6/2025	SHA0-DE	Germany	NC		11,917	12.61	158%	37%	5%	63%	157%	30%
MP Materials	2/6/2025	MP-US	USA	Carlos De Alba	Overweight	11,609	65.21	170%	6%	11%	5%	233%	29%
RBC Bearings	2/6/2025	RBC-US	USA	Kristine Liwag	Overweight	18,267	577.42	58%	-3%	0%	30%	58%	29%
Luxshare	2/6/2025	002475-CN	China	Sharon Shih	Overweight	78,125	10.74	75%	4%	45%	26%	140%	28%
Ambarella	2/6/2025	AMBA-US	USA	Joseph Moore	Overweight	3,973	90.58	15%	42%	50%	22%	45%	28%
NSK	2/6/2025	6471-JP	Japan	NC	NA	3,825	7.82	96%	2%	-12%	36%	91%	28%
Nidec	2/6/2025	6594-JP	Japan	Shoji Sato	Not-Rated	19,301	16.84	3%	13%	9%	36%	-5%	26%
Magna	2/6/2025	MGA-US	Canada	Andrew Percoco	Equal-Weight	18,501	66.36	73%	7%	5%	36%	84%	25%
Alphabet Inc.	2/6/2025	GOOGL-US	USA	Brian Nowak	Overweight	4,711,111	388.83	103%	11%	25%	21%	126%	24%
Pegatron	2/6/2025	4938-TW	Taiwan	Howard Kao	Equal-Weight	7,120	2.65	-14%	1%	13%	16%	-2%	22%
Foxconn Industrial Internet (FII)	2/6/2025	601138-CN	Taiwan	Sharon Shih	Overweight	219,510	11.06	266%	10%	35%	24%	304%	21%
LG Energy Solution	2/6/2025	373220-KR	Korea	Young Suk Shin	Equal-Weight	68,824	294.12	29%	-6%	4%	8%	53%	20%
Teledyne	2/6/2025	TDY-US	USA	Kristine Liwag	Equal-Weight	28,378	612.52	20%	-5%	-10%	23%	23%	20%
Cadence Design Systems	2/6/2025	CDNS-US	USA	Lee Simpson	Overweight	103,169	374.05	23%	15%	24%	20%	30%	20%
Estun	2/6/2025	002747-CN	China	Sheng Zhong	Underweight	4,042	4.18	40%	39%	19%	29%	47%	19%
Honeywell	2/6/2025	HON-US	USA	Chris Snyder	Equal-Weight	146,722	231.55	17%	9%	-5%	20%	9%	19%
Amazon	2/6/2025	AMZN-US	USA	Brian Nowak	Overweight	2,924,318	271.85	14%	5%	29%	17%	33%	18%
Rockwell Automation	2/6/2025	ROK-US	USA	Chris Snyder	Overweight	50,750	456.08	70%	14%	12%	15%	46%	17%
Samsung SDI	2/6/2025	096770-KR	Korea	Shawn Kim	Equal-Weight	13,184	77.85	-6%	-12%	-8%	2%	35%	16%
Apple	2/6/2025	AAPL-US	USA	Erik Woodring	Overweight	4,565,579	310.85	33%	15%	18%	11%	55%	14%
Hon Hai Precision (Foxconn)	2/6/2025	2317-TW	Taiwan	Sharon Shih	Overweight	117,227	8.37	52%	17%	8%	17%	73%	14%
NVIDIA	2/6/2025	NVDA-US	USA	Joseph Moore	Overweight	5,144,920	212.60	65%	0%	20%	20%	58%	14%
CATL	2/6/2025	300750-CN	China	Jack Lu	Overweight	281,682	61.31	64%	-3%	22%	11%	64%	13%
Synopsys	2/6/2025	SNPS-US	USA	Lee Simpson	Equal-Weight	100,746	525.92	-1%	9%	27%	26%	14%	12%
Siemens	2/6/2025	SIE-DE	Germany	Max Yates	Equal-Weight	236,794	310.65	29%	7%	8%	17%	23%	12%
Northern Rare Earths	2/6/2025	600111-CN	China	NC		27,182	7.52	118%	10%	-18%	13%	121%	11%
Shanghai Beite	6/17/2025	603009-CN	China	NC		2,679	7.73	17%	15%	-2%	26%	7%	9%
JL Mag	2/6/2025	6680-HK	China	Rachel Zhang	Overweight	3,517	2.56	97%	7%	-21%	11%	45%	9%
Amphenol	2/6/2025	APH	USA	NC		172,527	140.24	100%	-2%	-4%	0%	59%	4%
Shenzhen Inovance	2/6/2025	300124-CN	China	Sheng Zhong	++	30,551	11.35	11%	25%	6%	9%	17%	2%
Jiangsu Hengli	2/6/2025	601100-CN	China	Sheng Zhong	Overweight	22,167	16.53	67%	7%	-1%	11%	66%	2%
Midea	2/6/2025	000333-CN	China	Lillian Lou	Overweight	88,535	11.64	9%	-2%	0%	-1%	0%	1%
EVE Energy	2/6/2025	300014-CN	China	Jack Lu	Equal-Weight	20,141	9.71	48%	-7%	6%	-8%	44%	0%
Baidu	2/6/2025	BIDU-US	China	Gary Yu	Equal-Weight	36,145	129.91	46%	3%	4%	11%	56%	-1%
SKF	2/6/2025	SKF.b-SE	Sweden	Michael Harleaux	++	11,936	26.21	10%	6%	-6%	-1%	16%	-1%
Xusheng	2/6/2025	603305-CN	China	Shelley Wang	Equal-Weight	2,697	2.35	-7%	10%	-7%	19%	28%	-1%
BYD	2/6/2025	002594-CN	China	Tim Hsiao	Overweight	128,786	14.14	-8%	-6%	7%	1%	-21%	-2%
Oracle	2/6/2025	ORCL-US	USA	Keith Weiss	Equal-Weight	549,211	190.96	11%	15%	31%	-5%	17%	-2%
Tesla	2/6/2025	TSLA-US	USA	Andrew Percoco	Equal-Weight	1,653,869	440.36	18%	17%	9%	2%	23%	-2%
Mobileye	2/6/2025	MBLY-US	USA	Andrew Percoco	Equal-Weight	8,557	10.16	-38%	12%	20%	-14%	-40%	-3%
Meta	2/6/2025	META-US	USA	Brian Nowak	Overweight	1,612,549	635.26	-11%	-5%	-2%	-2%	-1%	-4%
Aptiv	2/6/2025	APTV-US	USA	Andrew Percoco	Overweight	13,099	61.90	15%	5%	-1%	-6%	8%	-4%
Hota	2/6/2025	1536-TW	Taiwan	Cindy Huang	Underweight	456	1.63	-16%	2%	-16%	-11%	-15%	-8%
TE Connectivity	2/6/2025	TEL	USA	NC		60,933	208.75	43%	2%	-9%	-8%	30%	-8%
Hexagon	2/6/2025	HEXA.B-SE	Sweden	Adam Wood	NAV	24,368	9.08	-21%	1%	-3%	-9%	3%	-8%
Toyota	2/6/2025	7203-JP	Japan	Shinji Kakiuchi	Equal-Weight	247,734	19.01	4%	-3%	-21%	-3%	15%	-10%
Moons Electric	2/6/2025	603728-CN	China	NC		4,000	9.55	-14%	14%	-6%	-2%	14%	-11%
Sanhua	2/6/2025	002050-CN	China	Shelley Wang	Equal-Weight	30,150	7.17	38%	10%	-5%	13%	89%	-12%
Shuanghuan	2/6/2025	002472-CN	China	Sheng Zhong	Overweight	5,146	6.10	9%	8%	0%	4%	28%	-13%
Alibaba	2/6/2025	BABA-US	China	Gary Yu	Overweight	306,514	127.76	27%	-2%	-11%	-19%	9%	-13%
UBTech	2/6/2025	9880-HK	China	NC		7,045	14.02	34%	6%	-10%	-3%	30%	-13%
Microsoft	2/6/2025	MSFT-US	USA	Keith Weiss	Overweight	3,065,491	412.67	-1%	-4%	5%	-16%	-10%	-15%
Take-Two	6/17/2025	TTWO-US	USA	Matthew Cost	Overweight	40,561	218.46	-8%	3%	3%	-11%	-4%	-15%
Tuopu	2/6/2025	601689-CN	China	Shelley Wang	Equal-Weight	16,871	9.71	-12%	16%	-3%	4%	34%	-15%
Naver	2/6/2025	035420-KR	Korea	Seyon Park	Equal-Weight	20,426	136.41	-12%	-7%	-19%	-16%	9%	-15%
Robosense	2/6/2025	2498-HK	China	NC		1,854	3.93	-18%	-5%	-15%	-6%	-12%	-16%
Zhaowei	2/6/2025	003021-CN	China	NC		4,045	15.16	-7%	11%	-14%	-2%	-4%	-17%
XPENG	2/6/2025	XPEV-US	China	Tim Hsiao	Overweight	12,854	16.45	-4%	2%	-6%	-25%	-15%	-19%
OmniVision	2/6/2025	603501-CN	China	Charlie Chan	Equal-Weight	18,895	15.03	-10%	-2%	-17%	-15%	-19%	-19%
Dassault Systemes	2/6/2025	DSY-FR	France	Adam Wood	Equal-Weight	28,543	21.61	-54%	-1%	0%	-23%	-45%	-22%
Palantir	2/6/2025	PLTR-US	USA	Sanjit Singh	Equal-Weight	317,668	132.51	19%	-6%	-3%	-21%	7%	-25%
Xiaomi	2/6/2025	1810-HK	China	Andy Meng	Overweight	93,454	3.65	-30%	-5%	-18%	-30%	-45%	-27%
Tencent	2/6/2025	700-HK	China	Gary Yu	Overweight	490,343	54.26	1%	-10%	-18%	-30%	-16%	-29%
Horizon Robotics	2/6/2025	9660-HK	China	Tim Hsiao	Overweight	10,644	0.73	4%	-21%	-31%	-28%	-24%	-34%
Unity	6/17/2025	U-US	USA	Matthew Cost	Overweight	12,118	27.76	18%	5%	52%	-35%	13%	-37%
GAC Group	2/6/2025	2238-HK	China	Joey Xu	Overweight	3,302	0.32	-20%	-13%	-32%	-39%	-8%	-38%
Roblox	6/17/2025	RBLX-US	USA	Matthew Cost	Overweight	32,670	45.63	-55%	-19%	-34%	-52%	-46%	-44%
Average								**59%**	**13%**	**17%**	**33%**	**70%**	**29%**
S&P 500								24%	5%	9%	10%	27%	10%
MSCI China								14%	-4%	-7%	-10%	3%	-8%
MSCI Taiwan								98%	11%	27%	67%	125%	58%
MSCI Korea								286%	32%	39%	142%	293%	119%
MSCI Europe								15%	3%	-1%	8%	14%	6%

Note: Data as of 5/27/2026 close. Trading data are in US$. Price returns only, does not account for dividend reinvestment. ++ Rating and estimates for this company have been removed from consideration in this report because, under applicable law and/or Morgan Stanley policy, Morgan Stanley may be precluded from issuing such information with respect to this company at this time. Source: FactSet, Morgan Stanley Research.

China's Humanoid Value Chain – Performance

Exhibit 26: China's Humanoid Value Chain Performance, Equal-weighted



Source: FactSet as of May 28, 2026 close, Morgan Stanley Research. Note: the list of companies are before the change of our China Humanoid Value Chain List as stated below. Results shown represent return exclude dividends, brokerage commissions and transaction costs. These figures are not audited. Past performance is no guarantee of future results

Exhibit 27: China Humanoid Value Chain list: 46 stocks in total, including three in brains, 32 in body components, and 11 integrators.

	Ticker	Company	Analyst	Market Cap	Last Close (LCY)	Price Change 1W	3M	YTD	1Y	Notes
Brain	BIDU-US	Baidu	Yu, Gary	37,259	129.4	(1%)	4%	(1%)	56%	Providing AI model ERINE 5.0, computing platform
Brain	002230-CN	iFlytek	Shih, Sharon	15,863	49.1	4%	(12%)	(2%)	8%	Offers full-stack “SuperBrain + Spark Desk” AI platform and multimodal model, taps into 450+ robot makers
Brain	9660-HK	Horizon Robotics	Hsiao, Tim	9,100	5.7	(3%)	(31%)	(34%)	NA	Its subsidiary D-Robotics launched system-on-chip (SoC) development kit RDK S100 for humanoids
Actuator	002050-CN	Sanhua	Wang, Shelley	28,756	48.6	(8%)	(5%)	(12%)	89%	One of Tesla EV T1 suppliers, developing humanoid actuators
Actuator	601689-CN	Tuopu	Wang, Shelley	16,870	65.8	(9%)	(3%)	(15%)	34%	One of Tesla EV T1 suppliers, developing humanoid actuators
Battery	300750-CN	CATL	Lu, Jack	280,965	415.7	1%	22%	13%	64%	CATL led the investment in Galbot, its leading powertrain solutions can be used to power humanoids
Battery	002245-CN	Azure	NC	5,099	21.5	16%	82%	79%	162%	Azure is a battery supplier to Unitree, DeepRobotics, Fourier and other humanoids integrators
Bearing	300718-CN	Changsheng	NC	3,607	77.5	(1%)	(4%)	(9%)	10%	Provides bearing products, screw products under R&D/sample stage, in collaboration with Unitree
Exterior	603305-CN	Xusheng	Wang, Shelley	2,719	16.0	(7%)	(7%)	(1%)	28%	Working with humanoid players to supply casting parts, expects to book revenue from humanoid in 2025
Hands	003021-CN	Zhaowei	NC	4,504	102.8	(8%)	(14%)	(17%)	(4%)	Offers dexterous hands, motors and modules; guides revenue of Rmb20-30mn for 2025 and Rmb100mn for 2026
Hands	002979-CN	Leadshine	NC	2,647	57.0	(9%)	44%	35%	24%	Investing Rmb500mn to develop and manufacture humanoid parts, released dexterous hands product
LiDAR	HSAI-US	Hesai	Hsiao, Tim	2,599	19.9	(5%)	(26%)	(11%)	(4%)	Robotics LiDAR reached ~240k units in 2025
LiDAR	2498-HK	Robosense	NC	1,903	30.8	(1%)	(15%)	(16%)	(12%)	Robot products surpassed 300k units in 2025
Magnets	300748-CN	JL Mag	Zhang, Rachel	6,323	34.0	3%	(17%)	(0%)	72%	Investing US$144mn in Mexico factory citing growing demand for humanoids and EVs
Motor	300124-CN	Inovance	Zhong, Sheng	27,222	77.0	(1%)	6%	2%	17%	++
Motor	600580-CN	Wolong	NC	9,575	41.7	3%	(7%)	(15%)	116%	Received small order for frameless torque motor, partnership with Zhangjiang humanoid center
Motor	603728-CN	Moons	NC	4,000	64.7	(4%)	(6%)	(11%)	14%	Offers coreless motor, frameless torque motor, encoder, reducer products for humanoids
Motor	688698-CN	Veichi	NC	2,310	73.2	(13%)	(14%)	(26%)	60%	Formed JV with Rongtai in Thailand for robotics products
Motor	688160-CN	Kinco	NC	1,604	119.7	(14%)	(4%)	(21%)	40%	Offers frameless torque motor for humanoids, collaborating with leading humanoid players
Reducer	002472-CN	Shuanghuan	Zhong, Sheng	4,569	41.4	(7%)	(0%)	(13%)	28%	Leading supplier of gears, currently used in other robotics, developing new type of reducer for humanoids
Reducer	688017-CN	Leaderdrive	Zhong, Sheng	8,548	316.1	(6%)	36%	65%	174%	Holds leading market share in humanoid harmonic reducers, with potential to contribute half of its 2026 revenue
Reducer	603915-CN	Guomao	Zhong, Sheng	1,679	17.0	(4%)	(1%)	(7%)	14%	Supplier of planetary reducer for DeepRobotics (a leading quadruped robot player)
Reducer	002896-CN	ZhongdaLeader	NC	2,384	82.2	3%	(2%)	(8%)	41%	Certified supplier for a key domestic integrator, announced to invest Rmb200mn for precision core components
Reducer	301550-CN	Sling	NC	3,577	171.9	(13%)	3%	24%	125%	Established production line for robotics, products include harmonic reducers, actuators, and bearings
Screw	601100-CN	Hengli Hydraulic	Zhong, Sheng	22,167	112.1	(2%)	(1%)	2%	66%	It is believed to be the major screw supplier to a North American integrator, with its Mexican capacity
Screw	300100-CN	Shuanglin	NC	2,785	33.0	(4%)	(9%)	(17%)	(27%)	Developed roller screw and grinding machine that can be used in humanoid, sent sample to domestic clients
Screw	603119-CN	Rongtai	NC	2,735	70.0	(13%)	(3%)	(21%)	110%	To invest US$77mn in Thailand for 7mn sets of robotics components, formed JV with Veichi in Thailand for robots
Screw	603667-CN	XCC	NC	4,224	74.7	(12%)	(7%)	7%	84%	To invest Rmb1.1bn for a new plant with an annual capacity of 980k sets of planetary roller screws
Semi	603501-CN	OmniVision	Chan, Charlie	18,785	101.9	(1%)	(17%)	(19%)	(19%)	Its existing sensor technology can be easily applied to humanoid's vision
Semi	688279-CN	Fortior	NC	3,671	234.4	(2%)	21%	15%	17%	Offers motor ASIC, driver IC, MCU, and established JV with Sanhua to develop dexterous hands
Sensor	600699-CN	Joyson	Wang, Shelley	5,993	28.3	(6%)	1%	(10%)	57%	Developed 6-axis force sensors, tactile sensors, IMU, and has placed commercial orders for humanoid robots
Sensor	603662-CN	Keli	NC	2,640	63.7	(5%)	(2%)	(11%)	3%	Developed 6-axis force sensor, and deploying humanoid robots in production line
Sensor	300007-CN	Hanwei	NC	2,222	46.0	(9%)	(12%)	(14%)	28%	Focus on soft, flexible sensor, cooperating with multiple leading integrators
Vision	688322-CN	Orbbec	NC	4,236	111.2	1%	22%	24%	110%	A key stuctured light camera supplier to leading domestic players
Vision	688400-CN	Luster LightTech	NC	4,415	64.9	2%	40%	53%	144%	Providing motion capturing solution - FZMotion for Unitree
Integrator	700-HK	Tencent	Yu, Gary	494,743	425.0	(3%)	(18%)	(29%)	(16%)	Tencent established a Robotics X lab in Shenzhen in 2018, unveiled XiaoWu
Integrator	BABA-US	Alibaba	Yu, Gary	298,456	124.6	(5%)	(14%)	(15%)	7%	Ant Group's subsidiary Robbyant unveiled LingBot VA (robot brain model) and R1 humanoid robot
Integrator	1810-HK	Xiaomi	Meng, Andy	77,978	28.6	(4%)	(18%)	(27%)	(45%)	Unveiled Xiaomi-Robotics-0, an open-source VLA model
Integrator	1211-HK	BYD	Hsiao, Tim	91,778	90.3	(0%)	(5%)	(5%)	(33%)	Developing humanoid project - Yao Shun Yu, testing UBTECH humanoids; invested in Paxini
Integrator	300-HK	Midea/KUKA	Lou, Lillian	86,855	85.1	(5%)	(6%)	0%	N/A	The self-developed 6-arm wheel-based humanoid Robot Ultra has entered its washing machine factory
Integrator	XPEV-US	XPENG	Hsiao, Tim	13,263	16.5	6%	(6%)	(18%)	(14%)	Its humanoid robot - Iron, is expected to enter mass production stage in 2026
Integrator	002747-CN	Estun	Zhong, Sheng	3,492	28.3	(1%)	19%	19%	47%	One of Huawei's 16 partners, developed humanoid motors, unveiled humanoid Codroid 02
Integrator	9880-HK	UBTECH	NC	6,066	109.8	(2%)	(10%)	(13%)	30%	Launched Walker S2, received over Rmb1.4bn order in 2025
Integrator	2432-HK	Dobot	NC	1,600	31.8	(2%)	(18%)	(16%)	N/A	Delivered its third batch of mass produced, full-size humanoid Atom robots
Integrator	002779-CN	Zhongjian	NC	1,994	73.1	(1%)	(23%)	(36%)	(2%)	One of Huawei's 16 partners, invested in 1X, launched quadruped robot P1
OEM	002600-CN	Lingyi iTech	Shih, Sharon	17,192	16.0	3%	4%	3%	99%	OEM for multiple integrators, will invest Rmb50mn in components and assembly capacity

Source: FactSet as of May 28, 2026 close, Morgan Stanley Research. Note: This is a constantly evolving list of Chinese companies involved in humanoids. Companies are included based on the following criteria: (1) MS covered companies; (2) Non-MS covered companies - either announced cooperation with key humanoid companies, or a certain revenue level in products to be applied in humanoid robots. Results shown represent return excluding dividends, brokerage commissions and transaction costs. These figures are not audited. Past performance is no guarantee of future results. For important disclosures regarding companies that are the subject of this screen, please see the Morgan Stanley Research Disclosure Website at www.morganstanley.com/researchdisclosures. ++ Rating and estimates for this company have been removed from consideration in this report because, under applicable law and/or Morgan Stanley policy, Morgan Stanley may be precluded from issuing such information with respect to this company at this time.

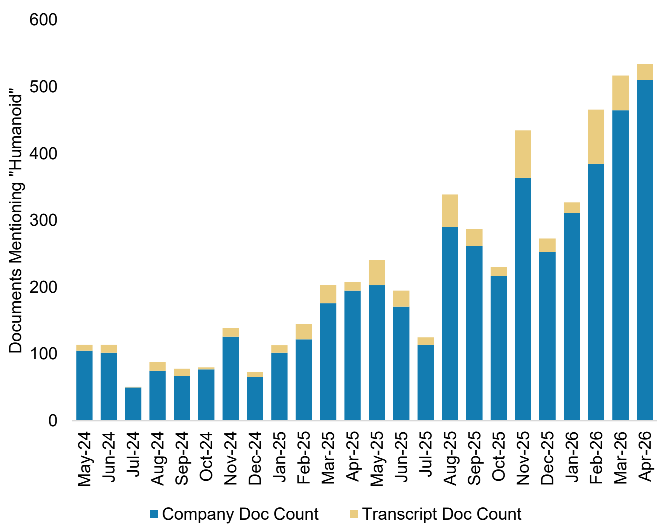
Exhibit 28: We see China suppliers are well positioned across the value chain

Source: Morgan Stanley Research

Tracking Humanoid Progress

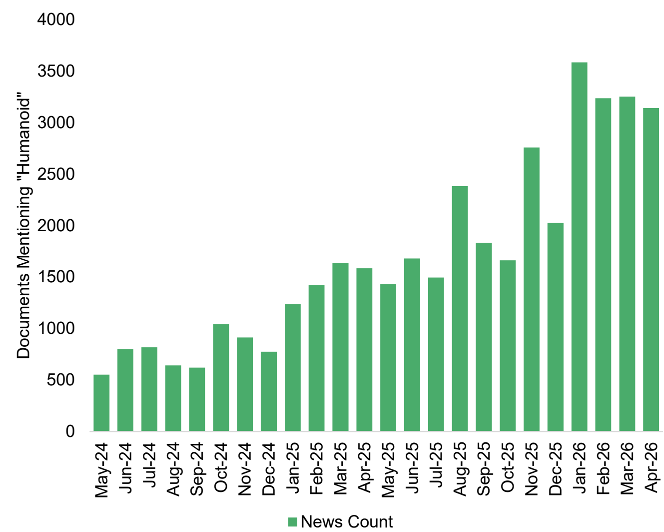
Humanoid Company & News Mentions

Exhibit 29: Time series of company transcripts mentioning "Humanoid "



Note: 'Company Documents' include filings, presentations, and press releases. Data is global. Source: AlphaSense, Morgan Stanley Research

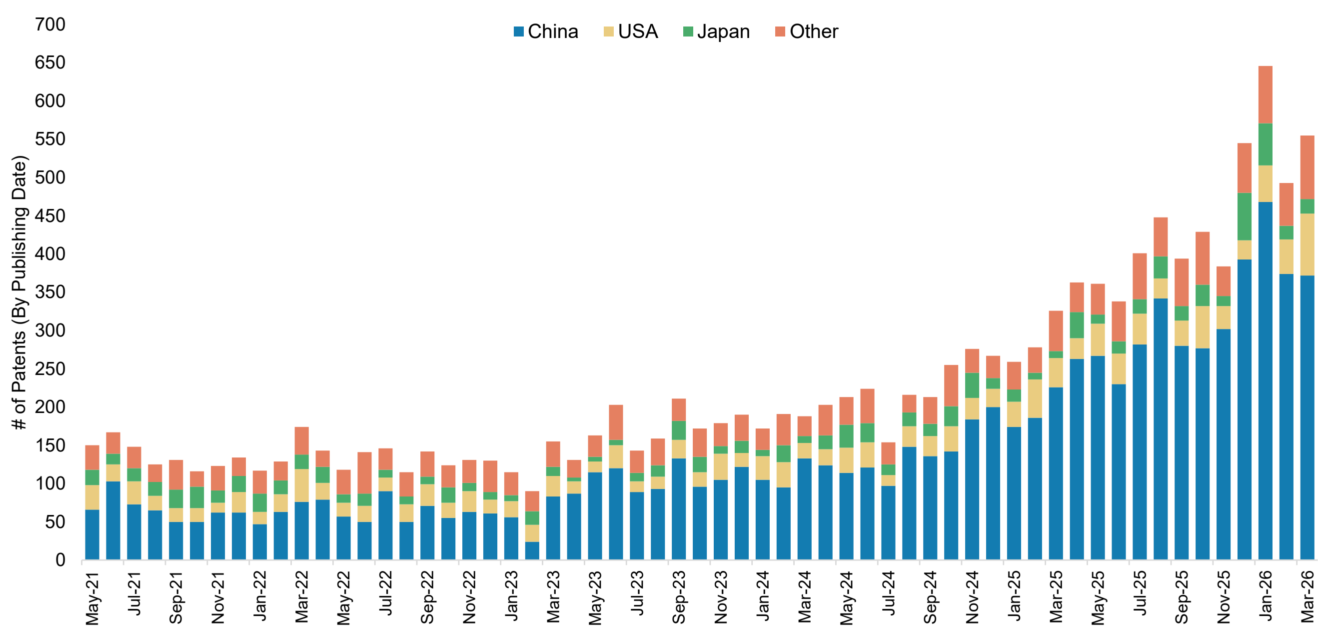
Exhibit 30: Time series of news/media reports mentioning "Humanoid"



Note: Data is global. Source: AlphaSense, Morgan Stanley Research

Global Patents

Exhibit 31: Monthly Patent Applications Mentioning "Humanoid" by Country



Note: Ordered by publishing date. According to Google Patents, may not capture 100% of patents. Source: Google Patents, Morgan Stanley Research

Exhibit 32: Global Patent Applications Mentioning "Humanoid" by Office Over the Past 5 Years *(According to Google Patents, may not capture all)*

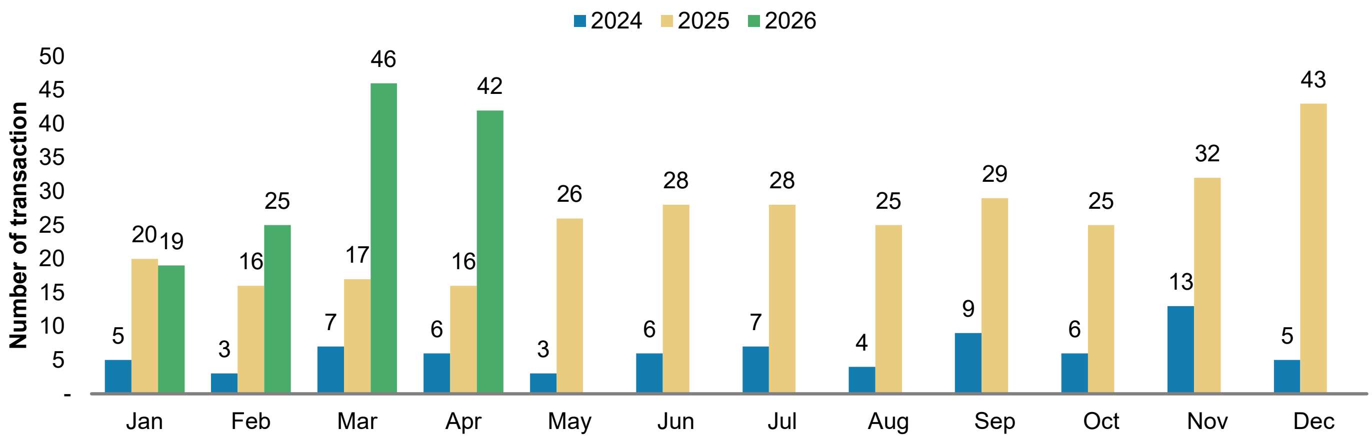
Patents Mentioning "Humanoid" By Office (Past 5 Years)

Rank	Patent Office	# Count
1	China	8,469
2	United States	1,647
3	World Intellectual Property Organization (WIPO)	1,101
4	Japan	1,088
5	South Korea	330
6	European Patent Office (EPO)	230
7	Taiwan	196
8	Germany	114
9	Australia	31
10	Brazil	23
11	Canada	21
12	Turkey	17
13	Poland	17
14	Great Britain	13
15	France	11
16	Italy	10
17	Spain	6
18	Eurasian Patent Organisation (EAPO)	6
19	Sweden	4
20	Romania	3

Note: Exhibit limited to top 20. Source: Google Patents, Morgan Stanley Research

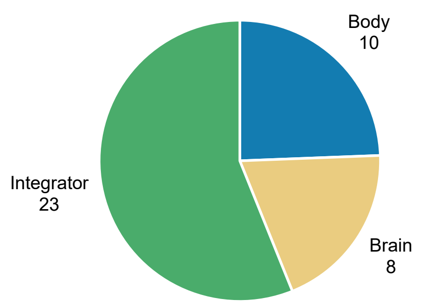
China – Financing Activity

Exhibit 33: Monthly Funding Activity – Chinese Humanoid Companies



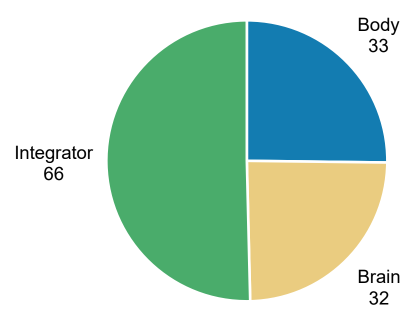
Note: Includes all notable funding disclosed based on our knowledge and research. However, some may still not be captured. We have updated the number of transactions in previous months to account for transactions announced after our previously published Humanoids Horizon report. Source: GGII, Company announcements, Morgan Stanley Research

Exhibit 34: China – Apr-26 Funding Activity Breakdown



Source: GGII, Morgan Stanley Research

Exhibit 35: China – 4M26 Funding Activity Breakdown



Source: GGII, Morgan Stanley Research

Tech Firms Supporting the Development of Humanoids

Exhibit 36: Humanoid or Robotics Involvement of Major Tech Firms in the US & China

Humanoid or Robotics Involvement of Big Tech Firms

Company	Involvement
Alibaba.com ANT GROUP	In Sept, ANT Group's robotics unit, Robbyant, unveiled 'R1' robot at trade show in Shanghai
amazon	Major in-house robotics team and deep experience with automation. Backer and partner of Agility Robotics. FAR (Frontier AI Robotics) Team building Robot Foundation models.
Apple	Reportedly planning a tabletop robot and have explored humanoid designs. Have released numerous AI frameworks & datasets for humanoid and non-humanoid robots.
Baidu 百度	UBTech's humanoids leverage Baidu's Ernie AI model. DEEPX leverages Baidu PaddlePaddle deep learning framework.
ByteDance	Unveiled general purpose VLA model ('GR3') and ByteMini robot
Google	Google Deepmind partnered with Apptronik and Others. Gemini Robotics is a major focus within Google Deepmind. Also develop MuJoCo physics engine for robotics.
HUAWEI	Embodied AI Innovation Center' in Shenzhen. Develop CloudRobo embodied intelligence platform based on Pangu AI model. Partnered with UBTech.
Meta	Reportedly forming new team within Reality Labs to conduct robotics work. CTO Andrew Bosworth described humanoids as 'next AR-sized bet'.
Microsoft	Partner and backer of Figure AI. Have an internal autonomous systems & robotics research team.
NVIDIA	Partnered with majority of humanoid developers under Project Gr00t. Bulk of humanoid players leverage Isaac Lab, Gr00t Models, Cosmos, or other tools.
Tencent 腾讯	In-house robotics team working on humanoid and non-humanoid robots. Tencent Cloud has partnership with Dobot.
TESLA	Developing 'Optimus' humanoid.
xiaomi	Developing 'CyberOne' humanoid

Source: Company announcements, Bloomberg, Reuters, Morgan Stanley Research

Global Humanoid TAM/Adoption Estimates

Note: The underlying Excel file for the TAM model discussed in this section is available upon request. Please reach out to your Morgan Stanley representative to obtain the model.

Global Adoption Estimates

According to Our Estimates:

- **By 2036, ~25.4 million (~2% of ~1 billion total) humanoid adoptions will have occurred.**
  - Low Income Countries: ~0.2 million (~1.8% of ~14 million total) humanoids have been adopted.
    - LI Countries Include: Rwanda, Ethiopia, Madagascar, Afghanistan, Yemen, etc.
  - Lower Middle Income Countries: ~3.7 million (~1.8% of ~204 million total) humanoids have been adopted.
    - LMI Countries Include: India, Honduras, Vietnam, Zimbabwe, Egypt, etc.
  - Upper Middle Income Countries (Inc. China): ~14.0 million (~2.8% of ~504 million total) humanoids have been adopted.
    - UMI Countries Include: China, Brazil, Belarus, Indonesia, South Africa, Mexico, etc.
  - High Income Countries (Inc. US): ~7.4 million (~2.5% of ~296 million total) humanoids have been adopted.
    - HI Countries Include: USA, Australia, Germany, Canada, United Arab Emirates, Japan, etc.
- **By 2040, ~137.5 million (~13% of ~1 billion total) humanoid adoptions will have occurred.**
  - Low Income Countries: ~1.1 million (~7.8% of ~14 million total) humanoids have been adopted.
  - Lower Middle Income Countries: ~16.2 million (~7.9% of ~204 million total) humanoids have been adopted.
  - Upper Middle Income Countries (Inc. China): ~80.4 million (~15.9% of ~504 million total) humanoids have been adopted.
  - High Income Countries (Inc. US): ~39.7 million (~13% of ~296 million total) humanoids have been adopted.
- **By 2044, ~428 million (~42% of ~1 billion total) humanoid adoptions will have occurred.**
  - Low Income Countries: ~3.9 million (~27.9% of ~14 million total) humanoids have been adopted.
  - Lower Middle Income Countries: ~57.6 million (~28.1% of ~204 million total) humanoids have been adopted.
  - Upper Middle Income Countries (Inc. China): ~245.7 million (~48.7% of ~504 million total) humanoids have been adopted.
  - High Income Countries (Inc. US): ~123.2 million (~41.6% of ~296 million total) humanoids have been adopted.
- **By 2050, ~1 billion million humanoid adoptions will have occurred.**

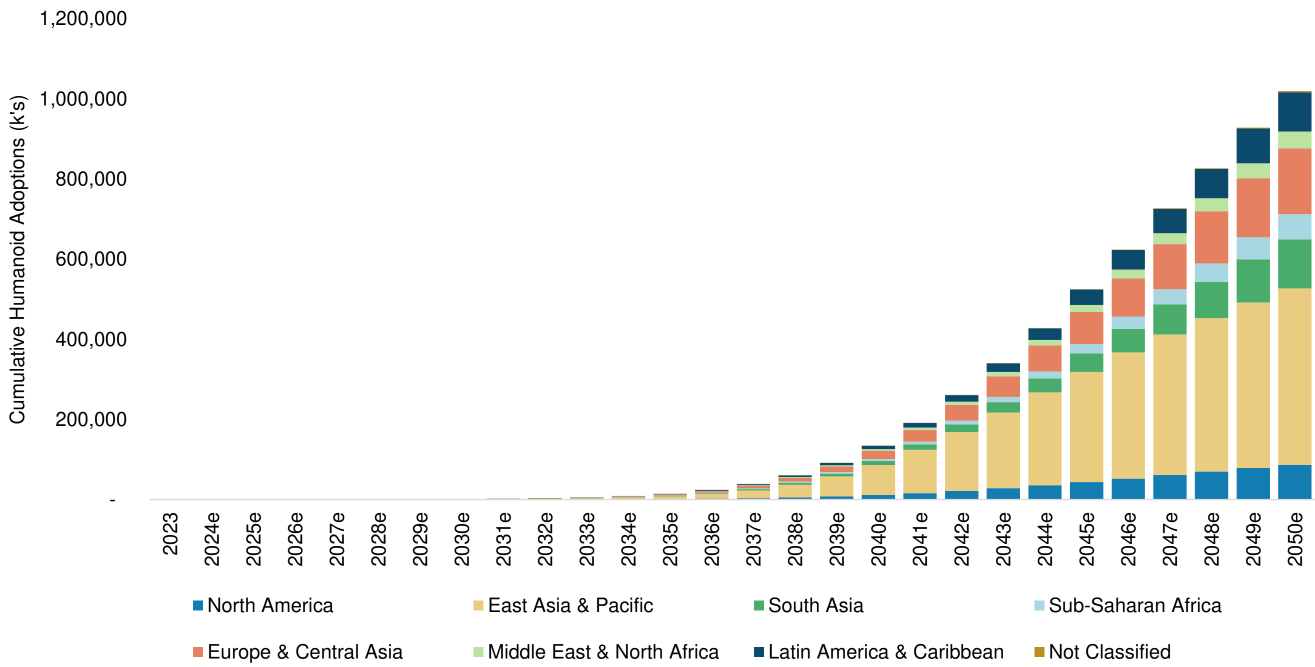
- Low Income Countries: ~14 million humanoids have been adopted.
- Lower Middle Income Countries: ~204 million humanoids have been adopted.
- Upper Middle Income Countries (Inc. China): ~504million humanoids have been adopted.
- High Income Countries (Inc. US): ~296 million humanoids have been adopted.

Exhibit 37: Key Adoption Estimates

Cumulative Adoptions (k's)				
Classification	**2036**	**2040**	**2044**	**2050**
Low Income	246	1,099	3,901	14,006
Lower Middle Income	3,745	16,248	57,553	204,498
Upper Middle Income	13,998	80,424	245,743	504,307
High Income	7,363	39,714	123,249	296,427
North America	2,159	11,512	35,816	86,866
East Asia & Pacific	13,132	77,984	234,002	439,936
South Asia	2,258	9,797	34,705	122,733
Sub-Saharan Africa	1,137	4,967	17,617	62,938
Europe & Central Asia	3,902	20,617	64,798	163,370
Middle East & North Africa	861	4,146	13,871	42,532
Latin America & Caribbean	1,862	8,289	29,032	98,361
Not Classified	41	173	607	2,501
USA	1,934	10,289	32,017	77,703
China	10,261	64,144	187,937	302,316
Other	13,157	63,051	210,492	639,219
Commercial	23,735	130,812	409,823	935,052
Household	1,618	6,673	20,623	84,185
Global	**25,353**	**137,485**	**430,447**	**1,019,238**

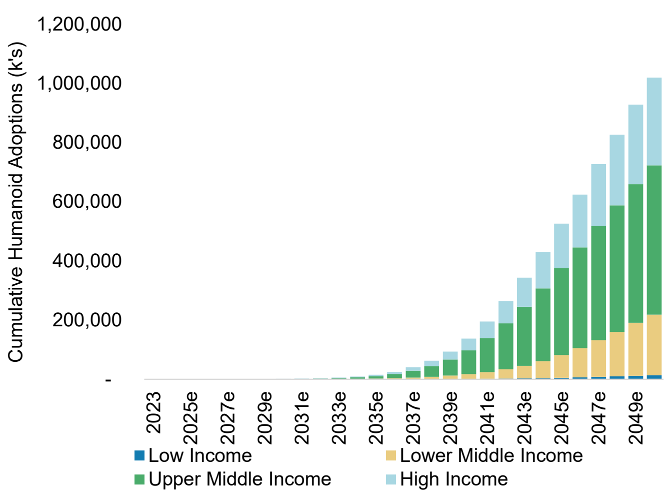
Source: Morgan Stanley Research estimates

Exhibit 38: Cumulative Humanoid Adoptions by Region



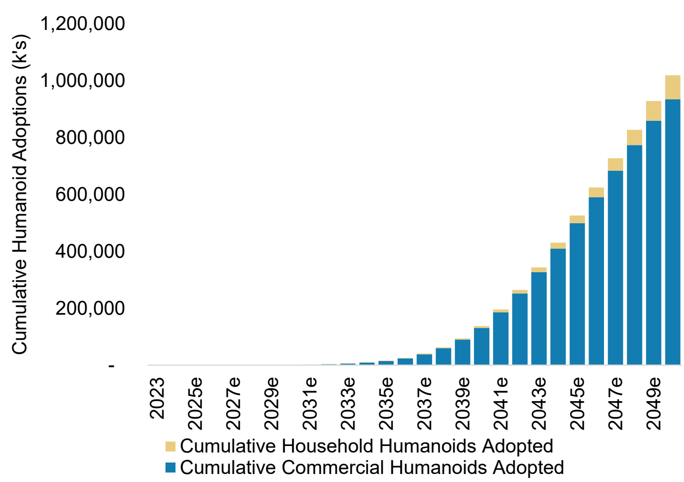
Source: Morgan Stanley Research (e) estimates

Exhibit 39: Cumulative Humanoid Adoptions by Country Income Classification (United Nations)



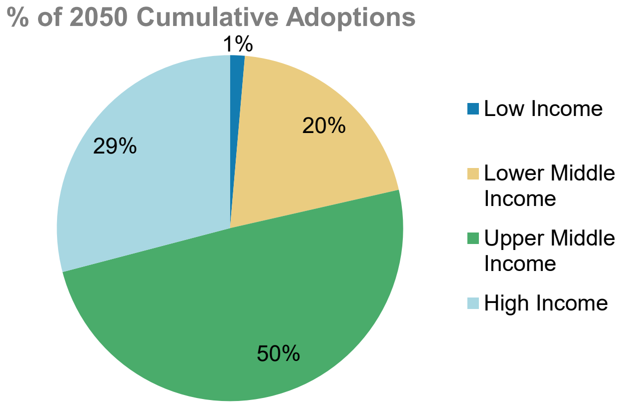
Source: Morgan Stanley Research (e) estimates

Exhibit 40: Cumulative Humanoid Adoptions: Household vs. Commercial End-Markets



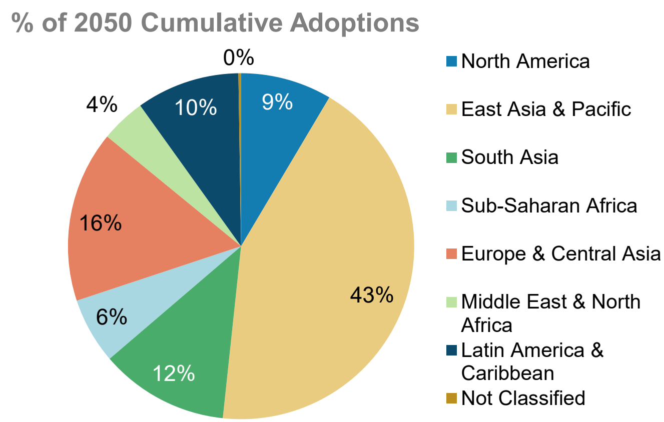
Source: Morgan Stanley Research (e) estimates

Exhibit 41: 2050 Cumulative Adoptions by Income Classifications



Source: Morgan Stanley Research estimates

Exhibit 42: 2050 Cumulative Adoptions by Region



Source: Morgan Stanley Research estimates

Sizing the Global Market

We estimate that the global humanoid market could reach US$7.5 trillion in annual revenue by 2050. Assuming a six-year replacement cycle and the below ASP assumptions, we estimate that the global humanoid market could reach US$7.5 trillion in annual revenue by 2050 (US$325 billion by 2035 and US$2.0 trillion by 2040). For comparison, in 2024, the 20 largest global auto makers booked an aggregate of ~US$2.5 trillion in revenue.

Average Selling Price (ASP) assumptions:

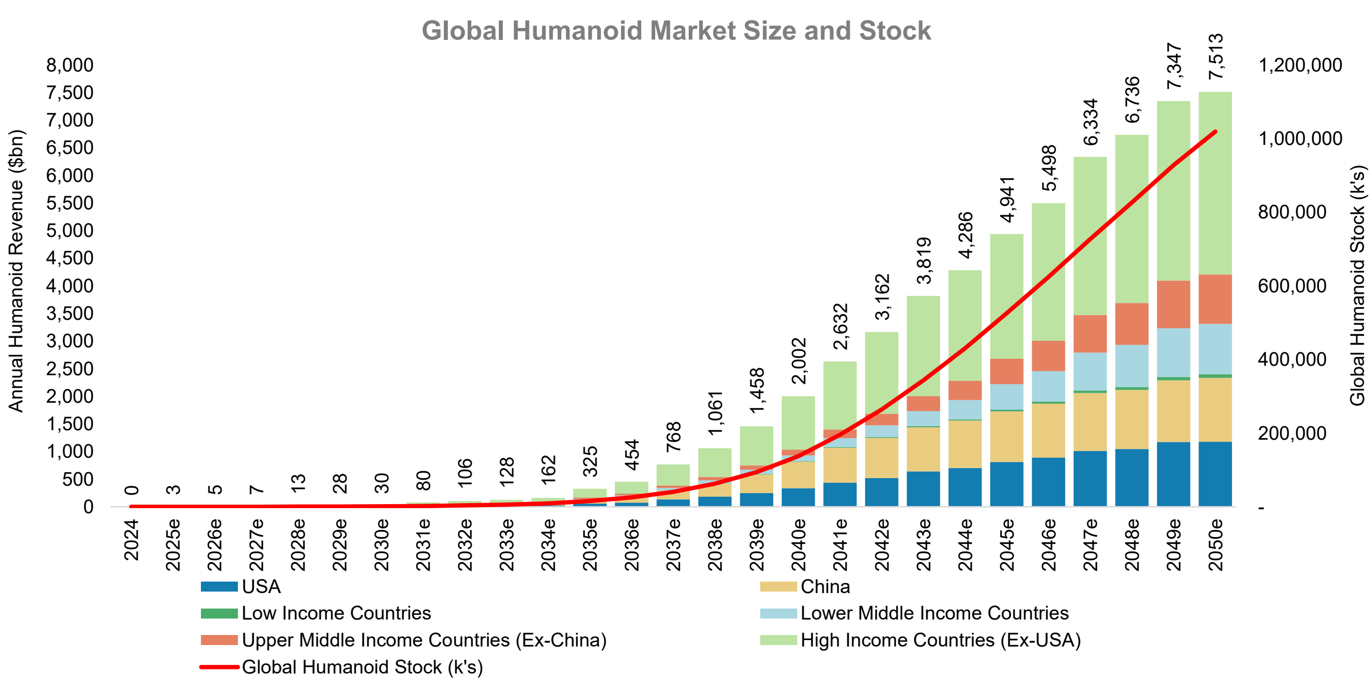
- High Income Countries: We assume that the initial ASP of humanoids was US $200k in 2024 (largely research-oriented humanoids), with this declining to US $150k each by 2028, and further declines to US$96k by ~2040 and ~US$75k by 2050 driven by supply chain development and improvements in mass-production. Assume initial ASPs are inflated given the current lack of domestic supply chains, which get mitigated over time with onshoring of AI/robotics-enabled manufacturing.
- Upper Middle/Lower Middle/Low Income Countries: We assume these humanoids are lower-cost with greater benefits of mass-production, localized supply chains, and production based in cost-efficient countries. Assume meaningful price deflation throughout 2050. We assume an initial ASP of ~US$50k (Rmb350k) in 2024, declining to ~US$21k (~Rmb150k) by 2050.

Exhibit 43: Global Humanoid Market / Revenue Estimates Through 2050 (Assumes Six-year Replacement Cycle)

Market Size Analysis																	
USA	**2024**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**	**2032e**	**2034e**	**2036e**	**2038e**	**2040e**	**2042e**	**2044e**	**2046e**	**2048e**	**2050e**
New Humanoid Units Adopted (mn)	-	0.00	0.00	0.01	0.02	0.04	0.033	0.17	0.2	0.7	1.6	3.3	5.0	6.5	7.4	7.7	7.4
Replacement Units (mn)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.0	0.2	0.2	0.7	1.8	3.5	5.7	8.3
Total Humanoid Units Sold (mn)	-	0.003	0.005	0.008	0.020	0.038	0.033	0.173	0.225	0.690	1.8	3.5	5.7	8.3	10.9	13.4	15.7
Average Selling Price Per Humanoid ($k)	200.0	187.5	175.0	162.5	150.0	137.5	130.0	122.3	115.1	108.3	101.9	95.9	90.2	84.9	81.5	78.3	75.2
USA Revenue ($bn)	**-**	**0.6**	**0.9**	**1.3**	**2.9**	**5.3**	**4.2**	**21.2**	**25.9**	**74.7**	**182.8**	**334.7**	**517.6**	**703.3**	**888.5**	**1,048.6**	**1,179.4**
China	**2024**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**	**2032e**	**2034e**	**2036e**	**2038e**	**2040e**	**2042e**	**2044e**	**2046e**	**2048e**	**2050e**
New Humanoid Units Adopted (mn)	0.002	0.012	0.028	0.046	0.091	0.159	0.262	0.539	1.373	4.130	10.371	21.543	31.389	31.9	24.9	15.3	11.5
Replacement Units (mn)	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.1	0.3	0.6	1.5	4.4	10.9	23.0	35.8	42.8
Total Humanoid Units Sold (mn)	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	1.5	4.4	10.9	23.0	35.8	42.8	47.9	51.1	54.3
Average Selling Price Per Humanoid ($k)	49.0	45.6	42.5	39.6	36.9	34.3	32.0	27.7	24.1	22.1	21.4	20.9	20.5	20.1	20.5	20.9	21.3
China Revenue ($bn)	**0.1**	**0.6**	**1.2**	**1.8**	**3.4**	**5.5**	**8.4**	**15.7**	**35.2**	**96.9**	**234.2**	**480.3**	**732.1**	**858.2**	**979.8**	**1,066.5**	**1,155.2**
Low Income Countries	**2024**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**	**2032e**	**2034e**	**2036e**	**2038e**	**2040e**	**2042e**	**2044e**	**2046e**	**2048e**	**2050e**
New Humanoid Units Adopted (mn)	-	-	-	-	-	-	0.0	0.0	0.0	0.1	0.2	0.3	0.6	1.0	1.5	1.8	1.8
Replacement Units (mn)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.0	0.1	0.2	0.3	0.7	1.2
Total Humanoid Units Sold (mn)	-	-	-	-	-	-	0.0	0.0	0.0	0.1	0.2	0.3	0.7	1.2	1.8	2.5	3.0
Average Selling Price Per Humanoid ($k)	49.0	45.6	42.5	39.6	36.9	34.3	32.0	27.7	24.1	22.1	21.4	20.9	20.5	20.1	20.5	20.9	21.3
LI Country Revenue ($bn)	**-**	**-**	**-**	**-**	**-**	**-**	**0.1**	**0.3**	**1.1**	**2.2**	**4.3**	**7.2**	**14.1**	**23.9**	**37.6**	**52.3**	**63.3**
Lower Middle Income Countries	**2024**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**	**2032e**	**2034e**	**2036e**	**2038e**	**2040e**	**2042e**	**2044e**	**2046e**	**2048e**	**2050e**
New Humanoid Units Adopted (mn)	-	-	-	-	0.0	0.0	0.0	0.2	0.6	1.4	2.6	4.5	8.8	14.5	21.9	26.4	25.7
Replacement Units (mn)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.2	0.6	1.5	2.8	5.1	10.2	17.3
Total Humanoid Units Sold (mn)	-	-	-	-	0.0	0.0	0.0	0.2	0.6	1.5	2.8	5.1	10.2	17.3	27.0	36.7	43.0
Average Selling Price Per Humanoid ($k)	49.0	45.6	42.5	39.6	36.9	34.3	32.0	27.7	24.1	22.1	21.4	20.9	20.5	20.1	20.5	20.9	21.3
LMI Country Revenue ($bn)	**-**	**-**	**-**	**-**	**0.7**	**1.4**	**1.5**	**4.8**	**15.0**	**32.7**	**59.2**	**106.0**	**209.6**	**346.7**	**551.5**	**764.9**	**915.0**
Upper Middle Income Countries (Ex-China)	**2024**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**	**2032e**	**2034e**	**2036e**	**2038e**	**2040e**	**2042e**	**2044e**	**2046e**	**2048e**	**2050e**
New Humanoid Units Adopted (mn)	-	-	-	-	0.0	0.0	0.0	0.2	0.6	1.4	2.6	4.5	8.8	14.6	21.8	26.2	24.6
Replacement Units (mn)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.2	0.6	1.5	2.8	5.1	10.3	17.4
Total Humanoid Units Sold (mn)	-	-	-	-	0.0	0.0	0.0	0.2	0.6	1.5	2.8	5.1	10.3	17.4	26.9	36.4	42.0
Average Selling Price Per Humanoid ($k)	49.0	45.6	42.5	39.6	36.9	34.3	32.0	27.7	24.1	22.1	21.4	20.9	20.5	20.1	20.5	20.9	21.3
UMI Country Revenue ($bn)	**-**	**-**	**-**	**-**	**0.7**	**1.2**	**1.5**	**5.1**	**14.8**	**32.8**	**59.9**	**105.9**	**209.9**	**349.7**	**549.7**	**760.6**	**894.6**
High Income Countries (Ex-USA)	**2024**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**	**2032e**	**2034e**	**2036e**	**2038e**	**2040e**	**2042e**	**2044e**	**2046e**	**2048e**	**2050e**
New Humanoid Units Adopted (mn)	-	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.6	1.9	4.6	9.5	14.4	18.5	20.5	22.5	20.3
Replacement Units (mn)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.1	0.5	0.6	2.0	5.1	10.1	16.4	23.6
Total Humanoid Units Sold (mn)	-	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.6	2.0	5.1	10.1	16.4	23.6	30.6	38.9	44.0
Average Selling Price Per Humanoid ($k)	200.0	187.5	175.0	162.5	150.0	137.5	130.0	122.3	115.1	108.3	101.9	95.9	90.2	84.9	81.5	78.3	75.2
HI Country Revenue ($bn)	**-**	**1.8**	**2.6**	**4.0**	**5.7**	**14.2**	**14.3**	**58.5**	**70.1**	**214.9**	**520.6**	**967.9**	**1,478.7**	**2,004.2**	**2,491.0**	**3,043.0**	**3,305.2**
Global	**2024**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**	**2032e**	**2034e**	**2036e**	**2038e**	**2040e**	**2042e**	**2044e**	**2046e**	**2048e**	**2050e**
New Humanoid Units Adopted (mn)	0.0	0.0	0.0	0.1	0.2	0.4	0.5	1.5	3.4	9.6	22.0	43.5	69.0	87.0	97.9	99.9	91.3
Replacement Units (mn)	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.2	0.5	1.6	3.6	10.1	23.6	47.1	79.1	110.6
Total Humanoid Units Sold (mn)	0.0	0.03	0.0	0.1	0.2	0.4	0.5	1.6	3.6	10.1	23.6	47.1	79.1	110.6	145.0	179.0	201.9
Average Selling Price Per Humanoid ($k)	49.0	119.2	97.0	90.5	71.6	73.1	59.9	66.6	45.2	44.8	44.9	42.5	40.0	38.7	37.9	37.6	37.2
Global Revenue ($bn)	***0.1***	***3.0***	***4.6***	***7.1***	***13.3***	***27.6***	***30.0***	***105.6***	***162.1***	***454.1***	***1,061.0***	***2,002.0***	***3,162.1***	***4,285.9***	***5,498.2***	***6,735.8***	***7,512.8***
Global Humanoid Stock (k's)	***2***	***27***	***74***	***153***	***339***	***717***	***1,216***	***3,747***	***9,356***	***25,353***	***62,648***	***137,485***	***264,400***	***430,447***	***624,103***	***826,858***	***1,019,238***

Source: Morgan Stanley Research (e) estimates

Exhibit 44: Humanoid Revenue by Year



Source: Morgan Stanley Research (e) estimates

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(as of April 30, 2026)

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Stock Rating Category	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
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Equal-weight/Hold	1568	43%	358	39%	23%	715	44%
Not-Rated/Hold	4	0%	0	0%	0%	1	0%
Underweight/Sell	555	15%	84	9%	15%	202	12%
Total	3,673		909			1627	

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INDUSTRY COVERAGE: China Industrials

COMPANY (TICKER)	RATING (AS OF)	PRICE* (05/28/2026)
Chelsea Wang		
China Railway Group (601390.SS)	E (05/12/2022)	Rmb4.67
China Railway Group (0390.HK)	E (08/11/2025)	HK$3.45
China State Construction Engineering (601668.SS)	U (08/11/2025)	Rmb4.73
Han's Laser (002008.SZ)	O (10/02/2025)	Rmb135.98
Hefei Meyer Optoelectronic Technology (002690.SZ)	E (09/08/2025)	Rmb15.41
iRay Technology Company Limited (688301.SS)	E (01/16/2025)	Rmb205.77
Neway Valve (Suzhou) Co., Ltd (603699.SS)	O (09/12/2025)	Rmb58.35
Shanghai BOCHU Electronic Technology (688188.SS)	O (08/22/2024)	Rmb162.54
Shenzhen Envicool Technology Co Ltd (002837.SZ)	O (08/19/2024)	Rmb97.52
Sheng Zhong		
Beijing Geekplus Technology Co., Ltd. (2590.HK)	O (08/07/2025)	HK$15.96
Centre Testing International Group (300012.SZ)	E (11/18/2024)	Rmb14.57
CRRC Corp Ltd (1766.HK)	U (01/22/2026)	HK$5.10
CRRC Corp Ltd (601766.SS)	U (01/22/2026)	Rmb5.73

DR Laser (300776.SZ)	E (12/17/2021)	Rmb166.10
Estun Automation Co Ltd (002747.SZ)	U (06/30/2022)	Rmb28.32
Haitian International Holdings Limited (1882.HK)	E (09/08/2025)	HK$19.83
Hongfa Technology Co Ltd (600885.SS)	O (05/23/2023)	Rmb35.97
Jiangsu Guomao Reducer Co Ltd (603915.SS)	U (01/08/2025)	Rmb17.04
Jiangsu Hengli Hydraulic Co.Ltd (601100.SS)	O (05/23/2023)	Rmb112.09
Jingsheng Mechanical & Electrical Co (300316.SZ)	U (01/08/2025)	Rmb54.89
Leader Harmonious Drive Systems (688017.SS)	O (01/22/2026)	Rmb316.13
Sany Heavy Industry Co., Ltd. (600031.SS)	O (01/08/2025)	Rmb17.90
Shenzhen Inovance Technology (300124.SZ)	++	Rmb76.95
Shenzhen SC New Energy Technology Corp (300724.SZ)	U (09/08/2025)	Rmb86.41
Sinotruk (Hong Kong) Limited (3808.HK)	E (05/19/2025)	HK$37.06
Suzhou Maxwell Technologies Co Ltd (300751.SZ)	U (09/15/2023)	Rmb260.97
Times Electric (3898.HK)	E (01/22/2026)	HK$43.00
WeiChai Power (2338.HK)	O (03/30/2026)	HK$42.14
WeiChai Power (000338.SZ)	O (03/30/2026)	Rmb35.31
Wuxi Autowell Technology Co Ltd (688516.SS)	U (09/08/2025)	Rmb70.32
Wuxi Lead Intelligent (300450.SZ)	O (09/08/2025)	Rmb51.41
Zhejiang Dingli Machinery Co Ltd. (603338.SS)	O (11/05/2025)	Rmb52.10
Zhejiang Hangke Technology (688006.SS)	O (09/08/2025)	Rmb39.44
Zhejiang Shuanghuan Driveline Co. Ltd. (002472.SZ)	O (08/25/2023)	Rmb41.39
Zoomlion Heavy Industry (1157.HK)	O (09/08/2025)	HK$7.23
Zoomlion Heavy Industry (000157.SZ)	O (09/08/2025)	Rmb7.21

Stock Ratings are subject to change. Please see latest research for each company.
* Historical prices are not split adjusted.