未经摩根士丹利书面许可，不得重新分发。

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美国联邦通信委员会关于光收发器的潜在规定更有可能针对3.2T规格。

最近的董事会议指出，3.2T代产品最有可能面临对中国产光模块的管制。这与第一季度与LITE的沟通内容一致，即任何管制措施都需逐步实施。预计相关规则将使激光市场持续紧张，这对LITE和COHR而言是个利好。

关键要点

- 我们的战略团队最近的华盛顿之行，让我们对联邦通信委员会可能出台的光收发器相关法规有了更清晰的认识。
- 潜在的限制措施预计将在3.2T水平上生效，从而限制基于中国的收发器产品；不过，如果物料清单中源自美国的内容占比超过65%，则可能存在规避途径。
- 对于莱特/科赫尔而言，这似乎是一种双赢的解决方案：激光市场有望持续供不应求，同时他们也不必涉足利润较低的模块组装业务。
- 此外，它也不会给超大规模云服务商造成瓶颈。
- 确保InP衬底的供应将是今后需要重点关注的关键。

发生了什么：摩根士丹利的策略师们最近与华盛顿政府、联邦通信委员会以及出口管制领域的法律团队进行了会面，这些团队与白宫和联邦通信委员会有直接联系。会谈重点讨论了政府减少对中国技术依赖的努力，其中联邦通信委员会的受管制清单有望成为短期内针对光模块采取限制措施的主要机制（我们在上周的华盛顿之行总结中已提到这一点）。政策讨论显示，3.2T光模块很可能是首先被实施限制的产品，时间可能早在10月。业界近期被要求，在3.2T光模块广泛部署前，提交切实可行的美国本土或友岸外包生产计划。我们了解到，相关讨论还表明，即便在3.2T规格下，中国制造的光模块仍有可能被允许进口，前提是元器件成本的65%来自美国企业（采用美国产的DSP芯片和激光器就能接近这一标准）。预计3.2T光模块的初始出货量要到2029年才会大幅增加，因此即便限制措施提前实施，对近期营收的影响也有限。我们认为这些规定有望避免对超大规模数据中心当前的建设能力造成制约；但由于要满足65%的价值占比要求，激光器必须主要来自美国供应商，这会使得激光器市场更加集中，这对LITE和COHR而言是利好。

这与本季度早些时候与LITE的对话如出一辙：8月底，我们在纳斯达克亚洲举办了LITE的见面会，会上我们询问了该公司关于潜在FCC规则的情况。当时他们提到，FCC已经就相关可能性与他们进行了沟通。

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In-Line

摩根士丹利与摩根士丹利研究报告中所涉及的公司存在业务往来，并寻求与其开展业务合作。因此，投资者应意识到该公司可能存在利益冲突，从而影响摩根士丹利研究报告的客观性。投资者在做出投资决策时，应仅将摩根士丹利研究报告视为众多考量因素之一。

有关分析师认证及其他重要披露信息，请参阅本报告末尾的披露部分。

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公司指出，客户反馈认为这些规则需要逐步实施，以避免市场上出现原材料供需错配现象，因为60%到65%的收发器均来自中国的供应商。他们还提到，仅就收发器业务而言，按照目前的定价结构，并不具备足够的吸引力。这些规则既逐步实施，又不对中国组装商加以限制——只要产品中包含足够比例的美国成分——似乎就能解决上述两个问题。

我们的看法：

1. 3.2T似乎很可能成为政策施压的焦点，但短期内的影响应当有限——政府的努力似乎旨在在3.2T产品实现规模化生产之前重塑供应链，而非破坏现有的800G和1.6T产品基础。由于3.2T产品的量产预计要到2028年才会开始，而更广泛的应用则要等到2029年左右，因此即便10月份将相关产品列入受限制清单，也还有大约两年时间让大量产品进入市场。超大规模云计算厂商已经在制定计划，旨在展示更多美国或盟友国家的制造能力，这表明政策目标越来越倾向于决定下一代产品的制造地点，而非立即取代现有的中国供应链。

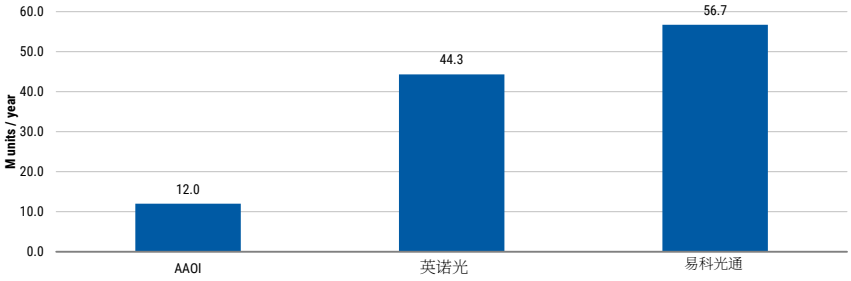
2. 与收发器市场份额相比，激光产品定价的影响更为显著——根据“受关注名单”框架，如果中国模组厂商能够增加其产品物料清单中的美国零部件占比，它们未必会丧失大量市场份额。将Marvell的美国产DSP与LITE/COHR的激光元件结合使用，有可能使中国制造的收发器达到我们战略团队政策会议中所讨论的65%美国价值占比门槛。如此一来，Innolight和Eoptolink（均由孟安迪覆盖）在转向使用中国产激光元件方面的灵活性将受限，但它们仍能在模组层面保持竞争力，从而降低对中国产激光制造商的依赖风险。因此，我们认为高速激光产品定价以及LITE/COHR元件市场份额的影响，要比收发器市场份额的整体重新分配更为显著。

替代产能尚未准备就绪；这也并非最具吸引力的机会——如上所述，LITE指出，光模块组装业务（毛利率在35%至40%之间）对美国的光器件公司而言并非最具吸引力的机会（相比之下，EML和激光器的稳态毛利率远超50%，如今甚至接近75%）。虽然3.2T产品尚未投产，但我们以AAOI目前的800G和1.6T产能扩张情况为例，来说明美国可用来满足未来潜在需求转变的供应规模。AAOI（未被覆盖）是唯一一家在美国本土生产光模块的企业，目前正着手扩大产能。AAOI在第二季度末的800G和1.6T产品制造能力已接近每月20万台，预计到2026年底将达到每月约65万台；管理层预计这一需求势头将持续至2027年中期。按年度计算，AAOI在2026年底的产能约为1200万台800G/1.6T产品，而根据上半年产能数据推算，英诺激光和光迅科技合计产能则达到约1.01亿台，是AAOI产能的8倍以上。基于AAOI的年底产能规划以及我们互联网团队对超大规模数据中心资本支出的分析，我们估计即便在相关产能完全释放前，AAOI也仅能支持不到4吉瓦的超大规模数据中心容量。

考虑到制造业产能利用率，要替代Innolight和Eoptolink相当大比例的供应量，就需要进行多年的大规模产能建设；而美国现有供应商在短期内吸纳这些产量的能力十分有限。

4. 磷化铟的供应及中国境外的采购渠道仍值得密切关注——潜在的美国联邦通信委员会规则可能给LITE和COHR带来双赢局面：这些规则能降低中国激光制造商涌入市场的风险，同时又无需迫使它们建立庞大的收发模块产能以承接利润较低的组装业务。不过，如果中国认为这些规则过于偏袒一方，可能会通过加强对磷化铟衬底的出口限制来回应，而磷化铟衬底正是扩大激光产能的关键瓶颈。同时，中国境外的采购渠道有望让受益企业范围超越美国供应商，从而支撑日本JX金属公司（5016 JP）对磷化铟衬底的需求；这也将利好住友电工（5802 JP）的CWLD产品以及古河电气（5801 JP）的DFB激光器。股票消息群，加QQ：1536582800

图表1：关于光收发器（所有速率），Innolight和Eoptolink整体而言，其容量比美国玩家AAOI高出约8倍。



来源：公司数据，摩根士丹利研究
注：AAOI（未覆盖）的数据基于2026年第四季度收发器产能的年化估算；Innolight和Eoptolink的数据基于2026年上半年的年化估算（均由Andy Meng负责覆盖）。

图表2：尽管业界尚未迎来3.2T产品，但根据AAOI在2026年第四季度预计推出800G和1.6T产品的计划，我们估计该公司在不考虑生产利用率的情况下，最多可支持约3.7吉瓦的产能。

AAOI容量→GW支持	Q4-26E假设/备注
800G OSFP容量(千单位/月)	420 AAOI Q4-26计划月度容量(容量斜坡滑动)
(+) 1.6T OSFP容量(千单位/月)	230 AAOI Q4-26计划月产能(产能爬坡图)
(=) 800G+1.6T(千单位/月)	650 两种速率均按模块一对一折算
(x) 每年月份数	12 将第四季度的月度运行率年化
(x) Units per K	1,000 将千转换为单位
(=) 年化的收发器(单位)	每年第四季度运行率最高可达7,800,000个单位
(/)每128K-GPU集群传输器数量	655,000 Lambda:~655K可插拔模块适用于128K-GPU集群
(=)每月800G+1.6T(K单位)	11.9倍 128K-GPU集群可装备的容量
(x) 每个集群的GPU数量	Lambda示例中使用的128,000集群规模
(=) GPUs supported	AAOI年产能可联网的1,524,275块GPU
(/) 每1GW(GB300 NVL72)的GPU数量	每1 GW (MS假设)有410,256个GB300 NVL72 GPU
(=) GW supported	3.7 GW上限：假设所有单元都用于AI后端织物

来源：公司数据，摩根士丹利研究

披露章节

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全球研究冲突管理政策

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全球股票评级分布

（截至2026年9月30日）

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仅供披露之用（根据FINRA要求），我们在“增持”、“中性”和“减持”评级旁边，同时列出“买入”、“持有”和“卖出”这一类别标题。摩根士丹利并不为所覆盖的股票赋予“买入”、“持有”或“卖出”评级。“增持”、“中性”、“不予评级”和“减持”并不等同于买入、持有和卖出，而是代表建议的相对权重（详见下文定义）。为满足监管要求，我们将最积极的股票评级“增持”对应为买入建议；将“中性”和“不予评级”分别对应为持有建议，而将“减持”对应为卖出建议。

	覆盖范围		投资银行客户(投资银行客户)			其他材料投资服务客户(杂项)	
股票评级类别	计数	% of Total	计数	% of Total IBC	评级百分比类别	计数	占总其他未分类
Overweight/Buy	1599	43%	455	48%	28%	783	44%
Equal-weight/Hold	1563	42%	394	42%	25%	763	43%
Not-Rated/Hold	2	0%	1	0%	50%	1	0%
Underweight/Sell	570	15%	96	10%	17%	227	13%
总数	3,734		946			1774	

数据包括目前被赋予评级的普通股和ADR。投资银行客户是指在过去12个月内向摩根士丹利支付投资银行费用的公司。由于小数四舍五入的原因，“占总比例”栏中的百分比之和可能不等于100%。

分析师股票评级

增持（O）。预计在未来12-18个月内，该股票在风险调整后的总回报率将超过分析师所覆盖行业（或行业团队）的平均总回报率。

同等权重（E）。预计在未来12-18个月内，该股经风险调整后总回报将与分析师所覆盖行业（或行业团队）的平均总回报持平。

不予评级（NR）。目前，分析师对该股在未来12至18个月内经风险调整后相对于其所在行业（或行业团队）覆盖范围内股票平均总回报的表现没有足够的信心。

减持（U）。预计在未来12-18个月内，该股票经风险调整后总回报将低于分析师所覆盖行业（或行业团队）的平均总回报水平。

除非另有说明，摩根士丹利研究报告中所列的价格目标的时间范围为12至18个月。

分析师行业观点

具有吸引力（A）：分析师认为，在未来12-18个月内，其所覆盖的行业表现相对于相关大盘基准将呈现吸引力，具体如下所示。

符合预期（J）：分析师认为，其所覆盖行业在未来12至18个月的表现将与相关大盘基准持平，具体如下所述。谨慎看待（C）：分析师对其所覆盖行业在未来12至18个月的表现持谨慎态度，其与相关大盘基准的比较情况如下所述。各地区的基准如下：北美地区为标普500指数；拉丁美洲为相关的MSCI国家指数或MSCI拉丁美洲指数；欧洲为MSCI欧洲指数；日本为东证指数；亚洲为相关的MSCI国家指数、MSCI次区域指数或MSCI亚太地区（除日本外）指数。

摩根士丹利史密斯·巴尼有限责任公司客户的重要披露事项

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摩根士丹利并非担任市政顾问，本文中所包含的意见或观点并非旨在构成、且也不构成《多德-弗兰克华尔街改革和消费者保护法案》第975条所指的咨询意见。

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摩根士丹利的研究报告通过我们在Matrix上的专属研究门户提供给客户，同时摩根士丹利也会以电子方式将其发送给客户。部分（但并非全部）摩根士丹利研究报告也会为了方便客户，通过第三方供应商提供，或以其他电子方式重新分发给客户。如需获取所有可用的摩根士丹利研究报告，请联系您的销售代表，或访问Matrix网站：http://www.morganstanley.com/matrix。

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MSICPL_摩根士丹利研究报告审计报告.pdf）。

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该令第49(2)(a)至(d)条所定义的高净值实体；或(iii) 属于可合法接收或获悉投资活动邀请或诱饵的人士（定义见经修订的《2000
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公司与RMB投资顾问（私人）有限公司各占50%股权的合资企业，而RMB投资顾问（私人）有限公司则由……全资拥有。



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行业覆盖：电信与网络设备

COMPANY (TICKER)	评级（截至） 价格*(2026年9月30日)	
Meta A Marshall		
Arista Networks (ANET.N)	O (10/31/2023)	$203.59
Axon Enterprise Inc (AXON.0)	O (12/03/2024)	$422.52
Ciena 公司 (CIEN.N)	E (10/10/2025)	$351.82
思科系统公司 (CSCO.0)	O (04/08/2024)	$107.63
Coherent 公司 (COHR.N)	E (12/13/2023)	$287.81
康宁公司 (GLW.N)	E (06/13/2024)	$153.76
F5 Inc (FFIV.O)	E (04/12/2022)	$445.18
Keysight Technologies Inc (KEYS.N)	O (07/13/2026)	$364.04
Lumentum Holdings Inc (LITE.0)	E (05/12/2021)	$971.26
Motorola Solutions Inc (MSI.N)	O (12/17/2025)	$445.97
Zebra Technologies Corporation (ZBRA.0)	E (12/02/2024)	$373.31

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UPDATE

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Telecom & Networking Equipment | North America

Potential FCC Rules on Optical Transceivers More Likely to Come in at 3.2T

Recent DC meetings highlight 3.2T as the most likely generation to see restrictions on China-based optical transceivers. This echoes conversations with LITE during the Q noting that any restrictions would need to be phased in. See potential rules keeping laser market tight, a pos for LITE/COHR.

Key Takeaways

- Recent DC trip by our strategist team gave a greater idea of what potential FCC rules on optical transceivers could look like.
- Potential restrictions, likely to come in at 3.2T, limit Chinese-based transceivers, with a potential workaround if US-based content above 65% of the BOM.
- Solution seemingly a win-win for LITE/COHR, with laser market likely to stay tight, but not having to take on lower module assembly business.
- Also, does not create bottlenecks for hyperscalers.
- Assuring InP substrate delivery will be key to look at going forward.

What Happened: Morgan Stanley strategists recently met with a senior Washington telecom, FCC and export-control legal team with direct engagement across the White House and FCC. Discussion focused on the Administration's efforts to reduce reliance on Chinese technology, with the FCC Covered List emerging as the more likely near-term mechanism for optical transceivers (a note we made in our AI Safety DC trip wrap-up last week). Policy discussions suggest 3.2T transceivers would likely be where restrictions would be phased in, potentially as soon as October, with industry recently asked to demonstrate credible U.S. or friend-shoring plans before 3.2T becomes broadly deployed. Our conversations noted that discussions are also indicating Chinese-built transceivers could still be importable, even at 3.2T, as long as 65% of the BOM comes from US-based companies (DSP / laser would get you pretty close). Initial 3.2T volumes are not expected to ramp in volume until 2029, limiting the near-term revenue impact of a restriction even if action comes sooner. **We would see these rules as having the potential to avoid creating a constraint on hyperscalers' ability to build today, but keeping the laser market tighter given laser would largely need to be from a US-based vendor to meet a 65% value threshold, a positive for LITE/COHR.**

How this echoes conversation with LITE earlier in the quarter: We hosted LITE at Nasdaq Asia in late August, where we asked the company about potential FCC rules. At the time they noted that the FCC had been in contact with them about potential

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Industry View **In-Line**

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rules, with the company noting their feedback was that the rules would need to be phased in over time to prevent material supply/demand dislocation in the market with 60-65% of transceivers coming from China-based transceiver vendors. They also noted that pure transceiver volumes alone, at current pricing structures, would not be the most attractive business for them to bring on. **These rules, which are both phased in and don't limit Chinese assemblers, as long as enough content is US-based, would seemingly address both of these concerns.**

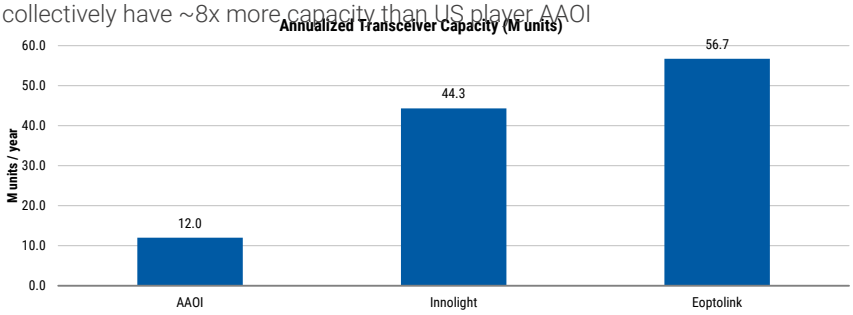
Our Thoughts:

1. **3.2T looks like the likely policy pressure point, but the near-term impact should be limited -** Administration efforts appear focused on reshaping the supply chain before 3.2T reaches volume rather than disrupting the existing 800G and 1.6T base. With the 3.2T ramp not expected to begin until 2028 and broader adoption closer to 2029, an October Covered List action would provide roughly two years before meaningful volumes enter the market. Hyperscalers are already working on plans intended to demonstrate greater U.S. or friend-shored manufacturing, suggesting the policy objective is increasingly about determining where the next generation is built rather than immediately displacing current Chinese supply.
2. **Laser pricing looks like the stronger read-through versus transceiver share -** A Covered List framework does not necessarily require Chinese module vendors to lose significant share if they can increase the U.S. content of the underlying BOM. Combining a U.S. DSP from Marvell with laser content from LITE/COHR could potentially move a Chinese-built transceiver to the 65% U.S.-value threshold discussed in our strategists team policy meeting. Such an outcome would leave Innolight and Eoptolink (both covered by Andy Meng) with less flexibility to substitute toward China-based lasers while allowing them to remain relevant at the module level, reducing the risk from China-based laser makers. We therefore see a stronger read-through for high-speed laser pricing and LITE/COHR component share than for a wholesale redistribution of transceiver share.
3. **Replacement capacity not ready; nor is it the most attractive opportunity -** As noted above, LITE noted that assembly of transceivers (mid-30's to low-40s gross margin product), is not the most attractive opportunity for US-based optical companies (vs. EMLs and lasers well north of 50% steady state and approaching 75% today). While 3.2T is not yet in production, we use AAOI's current 800G and 1.6T capacity ramp as an illustration of the scale of US supply available to absorb a potential future demand shift. AAOI (not covered), the only material US-based production of transceivers, is currently ramping capacity. AAOI exited Q2 with manufacturing capacity approaching 200,000 800G and 1.6T units per month and expects to reach ~650,000 units per month by year-end 2026, while management continues to expect demand to outpace production through mid-2027. **AAOI's YE26 capacity annualizes to ~12M 800G/1.6T units, versus ~101M units combined for Innolight and Eoptolink based on annualized 1H capacity (44.3M and 56.7M, respectively), or >8x AAOI.** Based on AAOI's year-end capacity plans and our Internet team's hyperscaler capex work, we estimate AAOI could support less than 4 GW of hyperscaler capacity even before

factoring in manufacturing utilization. Replacing a meaningful portion of Innolight and Eoptolink's supply would therefore require a substantial multi-year capacity build, with limited ability for existing U.S. suppliers to absorb those volumes in the near term.

4. **InP supply and sourcing outside of China will still be areas to watch -** Potential FCC rules could create a win-win for LITE/COHR by reducing the risk of China-based laser makers flooding the market, without forcing them to build significant transceiver module capacity to absorb lower-margin assembly business. Were China to view the rules as too one-sided, it could respond with tighter restrictions on InP substrate exports, a key bottleneck to laser capacity ramping. At the same time, sourcing outside of China could broaden the beneficiary set beyond U.S. suppliers, supporting InP substrate demand at JX Advanced Metals (5016 JP), while providing a tailwind for Sumitomo Electric's (5802 JP) CWLD products and Furukawa Electric's (5801 JP) DFB lasers.股票消息群，加qq：1536582800

Exhibit 1: As it relates to optical transceivers (all speeds), Innolight and Eoptolink collectively have ~8x more capacity than US player AAOI



Source: Company data, Morgan Stanley Research
Note: AAOI (not covered) figures based on annualizing 4Q26 transceiver capacity; Innolight and Eoptolink figures based on annualizing 1H26 figures (both covered by Andy Meng)

Exhibit 2: While the industry has not yet seen 3.2T, based on AAOI's 800G and 1.6T capacity ramp plans in 4Q26E, we estimate the company can support a maximum of ~3.7 GW without accounting for manufacturing utilization rates

AAOI Capacity → GW Supported	Q4-26E	Assumptions / Notes
800G OSFP capacity (K units / month)	420	*AAOI Q4-26 planned monthly capacity (capacity ramp slide)*
(+) 1.6T OSFP capacity (K units / month)	230	*AAOI Q4-26 planned monthly capacity (capacity ramp slide)*
(=) 800G + 1.6T (K units / month)	**650**	*Both speeds count one-for-one as modules*
(×) Months per year	12	*Annualizes the Q4-26 monthly run-rate*
(×) Units per K	1,000	*Converts thousands to units*
(=) Annualized transceivers (units)	**7,800,000**	*Max units per year at the Q4-26 run-rate*
(/) Transceivers per 128K-GPU cluster	655,000	*Lambda: ~655K pluggable modules for a 128K-GPU cluster*
(=) 128K-GPU clusters supported	11.9x	*Number of 128K-GPU clusters the capacity could equip*
(×) GPUs per cluster	128,000	*Cluster size used in the Lambda example*
(=) GPUs supported	**1,524,275**	*GPUs that AAOI's annual capacity could network*
(/) GPUs per 1 GW (GB300 NVL72)	410,256	*GB300 NVL72 GPUs per 1 GW (MS assumption)*
(=) GW supported	**3.7 GW**	*Upper bound: assumes all units go to AI back-end fabric*

Source: Company data, Morgan Stanley Research

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Equal-weight/Hold	1563	42%	394	42%	25%	763	43%
Not-Rated/Hold	2	0%	1	0%	50%	1	0%
Underweight/Sell	570	15%	96	10%	17%	227	13%
Total	3,734		946			1774	

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INDUSTRY COVERAGE: Telecom & Networking Equipment

COMPANY (TICKER)	RATING (AS OF)	PRICE* (09/30/2026)
Meta A Marshall		
Arista Networks (ANET.N)	O (10/31/2023)	$203.59
Axon Enterprise Inc (AXON.O)	O (12/03/2024)	$422.52
Ciena Corporation (CIEN.N)	E (10/10/2025)	$351.82
Cisco Systems Inc (CSCO.O)	O (04/08/2024)	$107.63
Coherent Corp (COHR.N)	E (12/13/2023)	$287.81
Corning Inc (GLW.N)	E (06/13/2024)	$153.76
F5 Inc (FFIV.O)	E (04/12/2022)	$445.18
Keysight Technologies Inc (KEYS.N)	O (07/13/2026)	$364.04
Lumentum Holdings Inc (LITE.O)	E (05/12/2021)	$971.26
Motorola Solutions Inc (MSI.N)	O (12/17/2025)	$445.97
Zebra Technologies Corporation (ZBRA.O)	E (12/02/2024)	$373.31

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* Historical prices are not split adjusted.

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