China / Hong Kong Industry Focus

China Hardware Sector

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DBS Group Research . Equity

15 Oct 2024

How to ride on Al's evolution into a daily assistant?

Market skepticism on Al device penetration,

- due to niche applications and uncertain specs, should dissipate with Apple Intelligence (AI)
 Al's strong privacy features and standardised
- specs for PCs are unlocking AI device demand
 Anticipate AI PC shipments to surge by 180%
- y/y in 2025, ahead of consensus' 166%
- <u>Lenovo</u>, <u>Xiaomi</u>, <u>BYDE</u> and <u>AAC</u> poised to gain from robust growth in AI devices in 2025

Apple Intelligence fuelling widespread adoption of Al smartphones. Al devices (smartphone and PC) penetration is low at c.10%, held back by niche applications and consumer uncertainty about specs. Apple's upcoming powerful in-house Al suite "Apple Intelligence," is expected to be a robust work assistant with Al tools for language refinement and scheduling, all with a privacy-focused ondevice approach. This balance of privacy and productivity makes the iPhone a secure, efficient work device, setting new Al standards and encouraging broader Al use in daily tasks. Meanwhile, Android competitors like Xiaomi, with the XM15's next-gen Snapdragon Al SoC and Google's Al suite Gemini, are also poised to drive Al adoption forward.

Rising Al device adoption along with standardised specs. We reaffirm our forecast that iPhone 16 series sales in 4Q24 will get a significant boost from Apple Intelligence, driving a 3.9% y/y increase in shipments to 240.5mn units in 2024, 5.2% ahead of market consensus. PCs powered by Intel's first Al-optimised CPU, set for release in Nov 2024, are also expected to establish a new standard for Al PCs, unleashing pent-up demand. Al PC adoption, especially in the commercial segment, is expected to accelerate in 2025, with a projected 180% y/y increase, outpacing consensus' 166%.

Hardware vendors to ride on increased shipments in 2025. Leading hardware vendors like Lenovo and Xiaomi are well positioned to benefit from increased shipments driven by Al adoption. Xiaomi's upcoming flagship XM15 is expected to drive its high-end smartphone shipment growth by 34%/19% in FY24 /25F, exceeding market expectations by 2%/6%. We maintain BUY on Lenovo and Xiaomi, with higher TPs of HKD13.6/31.0, as we raised FY25F earnings by 9.5%/4.6%. BYDE and AAC Tech are also poised to capitalise on iPhone 16 shipment growth, bolstered by Apple Intelligence, as key players in the Apple's Al supply chain. Maintain BUY on both counters. All picks offer attractive valuations, trading well below the downstream average PEG of 1.52.

HSI: 20,319

ANALYST

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Recommendation & valuation

Company Name	Price HK\$	Target Price HK\$	Recom	Mkt Cap US\$m	PE 25F x
AAC Technologies (2018 HK)	31.00	43.00	BUY	4,765	13.2
BYD Electronic (285 HK)	32.40	45.00	BUY	9,362	10.4
<u>Lenovo Group</u> (992 HK)	10.92	13.60	BUY	17,372	8.2
Xiaomi Corp (1810 HK)	23.00	31.00	BUY	73,672	20.6

Source: Thomson Reuters, DBS Bank (Hong Kong) Limited ("DBS HK")



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Introduction

The penetration of AI devices such as AI smartphones and AI PCs remains low at around 10%, primarily due to (1) AI applications are in a niche market, and (2) uncertainty regarding future specification developments, which has led to consumer hesitation in adopting these products. These are evidenced by market remaining sceptical on reception to Apple Intelligence and its boost to iPhone16 sales. However, we expect these challenges and uncertainties in the smartphone (iOS and Android) and PC segment to be alleviated during end-2024 and 2025 led by a series of Alproducts to be launched.

Apple Intelligence fuelling widespread adoption of Al smartphones

Al smartphone - iOS

Apple's upcoming iOS 18.1, scheduled for release on 28 October 2024, will introduce its first Al suite, "Apple Intelligence," featuring enhancements such as an Alpowered Siri and a focus on Al privacy through a combination of on-device and cloud-based computing.

While the market is still sceptical on the reception of Apple Intelligence and sales of iPhone 16, we expect Apple Intelligence to propel Al applications into mainstream and spark widespread Al smartphone adoption. We have addressed the key concerns about Apple's Al launch:

1. Why is there scepticism about the Apple's iPhone 16 sales and Apple intelligence?

Modest hardware upgrades and limited Al appeal. Despite the lack of official sales data since the release of iPhone 16, online commentary and research suggest that its hardware upgrades may not be significant enough to drive phone replacements. Enhancements such as ultra-wide camera, addition of a camera button, and a larger screen for Pro models are viewed as minor compared to the more substantial specification upgrades seen in flagship models of android competitors. Furthermore, the Al features in Apple Intelligence, including image creation, real-time transcription, and language and writing tools, are similar to external applications already available in the market.

Delayed AI launch behind competitors' offerings.

Additionally, Apple Intelligence was not available at the time of iPhone 16 launch, and the development of Apple's AI (expected to launch on 28 Oct 2024) has been relatively

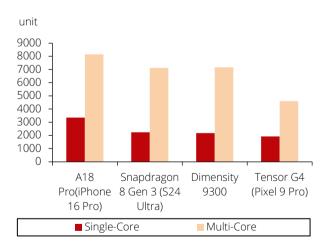
slow or delayed compared to competitors like Google's Gemini (launched in Dec 2023), Microsoft's Copilot (launched in Sep 2023), and OpenAl's ChatGPT (launched in Nov 2022).

2. What has the market overlooked about Apple Intelligence and the Al-optimised iPhone 16?

Advanced hardware for edge Al computing: Although the iPhone 16 series upgrades may not be immediately apparent, significant advancements will enable it to be the most capable hardware for edge Al computing available on smartphones. The A18 Pro chip in the Pro models is the fastest SoC (System-on-a-Chip) in any smartphone, featuring enhanced GPU capabilities for efficient Al processing.

Additionally, the Pro models have four enhanced microphones with an improved signal-to-noise ratio (up from three in iPhone 15 Pro) to enhance the Al-powered Siri experience. The new chassis design in the Pro models is also optimised for heat dissipation, enabling higher computing power necessary for edge Al tasks. These advancements position the iPhone 16 series as exceptionally equipped for extensive edge Al computing as Apple Intelligence features are rolled out.

Geekbench 6 single-core and multi-core comparison across various flagship SoCs



Source: DBS Bank, Geekbench 6

Apple's Role as a Market Mainstreamer: Apple may not always be the first to introduce a new technology, but it consistently brings these innovations for widespread adoption. Just as there were smartphones before the iPhone, tablets before the iPad, smartwatches before the

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Apple Watch, and true wireless earbuds before AirPods, Apple's strength lies in refining technologies and making them indispensable for daily use. This approach has allowed Apple to capture substantial market share: 39% in tablets with iPad, 90% of smartphone profit share with the iPhone, 24% in true wireless earbuds with AirPods, and 22% in smartwatches with the Apple Watch. We anticipate that Apple Intelligence and the Al-enabled iPhone will follow a similar path, becoming mainstream technologies, driven by Apple's proven R&D capabilities and exceptional marketing prowess.

3. What essential AI features or benefits make Apple Intelligence and AI-Powered iPhone a necessary upgrade? What will users miss by not buying It?

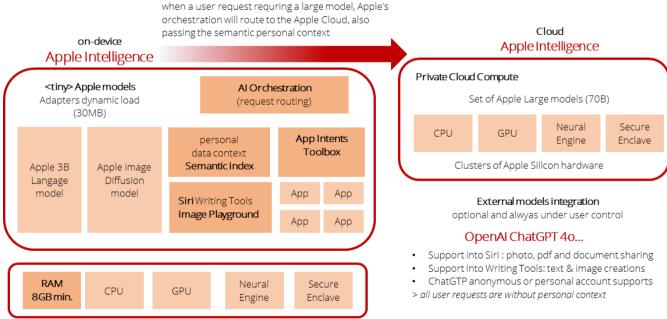
Privacy protection to bring Apple Intelligence and AI devices into the mainstream

Privacy is central to Al development at this stage, with

concerns about personal data leakage being one of the more significant issues. Users are hesitant to incorporate Al into daily personal tasks, such as managing personal photos, schedules, emails, and messages though applications as most of them involving cloud processing. However, Apple Intelligence addresses these concerns with its three-level hierarchy that processes personal data and makes decisions at Apple silicon—on-device with no connection to Apple's or any external cloud. This minimises data leakage risks.

We expect Apple Intelligence will encourage users to apply AI to their daily tasks by providing a privacy-safe, enclosed system, enabling activities like meeting scheduling, email proofreading, and photo editing. This privacy-focused approach could once again bring AI applications and devices into the mainstream.

Apple Intelligence's 3-level hierarchy



Source: DBS Bank, Internet source

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Maximising work efficiency with iPhone as a work device - at no additional cost

The Al-enhanced iPhone is a critical upgrade for users seeking improved work efficiency. The on-device Siri acts as a personal assistant, processing personal data—such as photos, schedules, emails, and messages—securely without relying on a public cloud. This privacy-centered design significantly enhances the iPhone's functionality for business users.

Efficiency boosts Include:

Enhanced productivity: Al-powered transcription seamlessly converts calls or meetings into text, supporting better record-keeping and reference.

Language and writing assistance: The AI refines language, suggests improvements, and adapts writing style for various audiences, enhancing communication effectiveness.

Integrated time and schedule management: The AI system checks traffic, adjusts alarms, and suggests optimal times for appointments, optimising time management.

These features, which could cost c.USD60 per month through individual subscriptions (like Midjourney, Grammarly, and Gemini), offer significant advantages by centralising functions within the iPhone and minimising data exposure to external clouds. By not upgrading, users miss out on these integrated capabilities that streamline work tasks and boost productivity.

Apple Intelligence functions VS external applications

Apple Intelligence's Al functions	Subscription fee	Alternative Al apps	Subscription fee (per member per month)
Image Playground		Midjourney	USD 10
Writing (suggested replies, proofreading and rewriting tools) Al Siri	Free	Grammarly	USD30
Management (schedule, Al photos management, mastering mail box)		Gemini advance	USD20
0 1 11,		Total	USD 60

Al Suite subscription fee comparison

Source: DBS Bank

Apple intelligence	Subscription fee
Copilot for Microsoft 365	USD30 per user per month
Gemini advance	USD20 per month
Source: DBS Bank	

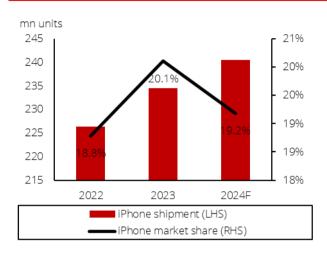
Apple's integration of Al into iPhones and MacBooks is just the beginning. We expect Apple will extend Al to devices like Apple Watch, TWS, and headsets, transforming them into personal health assistants. With on-device Al, these devices could deliver tailored health support, acting as a "private nurse" for users, especially those with chronic conditions. Using existing personal data, Apple's health assistant could monitor vital signs, track metrics, and provide personalised health insights, positioning Apple to impact the health device market significantly.

2024 iPhone shipments 5% ahead of market

We maintain our view that Apple Intelligence will set the benchmark for AI suites across devices, with Android manufacturers likely to follow Apple's lead in terms of deep personal context understanding and robust infrastructure for user data privacy. We reinstate our forecast that iPhone 16 series sales in 4Q24 will be significantly boosted by the implementation of Apple Intelligence on October 28, 2024. This enhancement is expected to drive a 3.9% y/y increase in total iPhone shipments, reaching 240.5mn units in 2024, which is 5.2% ahead of market consensus.



iPhone smartphone shipments and market share



Source: IDC, DBS Bank

Expected Apple Intelligence features release timeline

iOS version	iOS18.1 (in beta)	iOS 18.2	iOS 18.3	iOS 18.4
Availability	28 Dec 2024 (public	Dec 2024	Before	Mar 2025
	beta out now)		end-2024	
Al features to	- Clean Up,	- Genmoji,	- Minor	- Overhauled
be release	notification and app	- Image	updates	Siri assistant
	summaries,	Playground		with better
	- Suggested replies,			contextual
	proofreading and			and
	rewriting tools,			personalized
	- Phone call recording			responses
	and transcription,			
	- New focus mode,			
	- Create Memories			
	movies based on			

Source: DBS Bank, Internet source

Al smartphone - Android

Al-optimised flagships in the Android ecosystem

While Apple Intelligence is expected to draw consumer attention to AI smartphones following its launch, we anticipate that some Android players will also benefit from the AI smartphone adoption trend through ongoing advancements in hardware and operating systems.

On the Android side, we expect the upcoming launch of Xiaomi's Al-optimised flagship, the XM15, on 23 October 2024, to be a strong competitor in the Al smartphone market. The Xiaomi 15-series will be the first Chinese

smartphone to integrate Google's AI suite, Gemini, for global release outside mainland China. Gemini AI is currently the most powerful AI suite available for Android, offering exceptional performance and broad capabilities. It ranks highly on the LMSYS Arena leaderboards, which benchmark large language models (LLMs). This integration is expected provide XM15-series with competitive edge in generative AI functionality compared with its Chinese smartphone competitors.

Ranking of chatbot arena LLM leaderboard

Ranking	Generative Al suites	Providers
1	ChatGPT	OpenAl
2	Gemini	Google
3	Grok	xAl
4	Claude	Anthropic
5	Llama	Meta

Source: DBS Bank

The Xiaomi 15 series will also be the first to feature the Snapdragon 8 Gen 4 SoC. The processor is expected to include a Low-Power Al subsystem and the Qualcomm Sensing Hub, designed to enhance on-device generative Al capabilities while prioritising energy efficiency. With Al processing power reportedly close to Apple's A18 Pro (35 TOPS), the Snapdragon 8 Gen 4 SoC is set to run Al applications smoothly on Android phones.

We expect the Xiaomi 15 series to replicate the success of its predecessor, with projected shipment growth of 25% to c.10mn unit in compared to the Xiaomi 14 series, which saw an 80% y/y increase over the Xiaomi 13 series.

Therefore, we anticipate the Xiaomi's high-end smartphone shipments to grow by 33.5%/ 19.4% y/y to 33.8/ 40.3mn units in FY24/ 25F, respectively, ahead of market expectations by 2.0%/ 6.1%.

AI PC

Real start for AI PCs driven by standardised specs

Unlike Al suites or operating systems, which face uncertain paths in the smartphone market, Al integration within the PC ecosystem is primarily centered on Microsoft Windows, which holds dominant market shares in both retail (70%) and commercial (86%) PC segments. While Microsoft's Al suite, Copilot, has clear visibility and a well-defined trajectory

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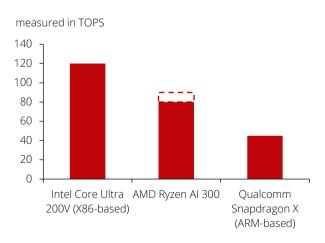
due to its integration with Windows, the market remains concerned about the currently low adoption rate of Al PCs.

Why are AI PCs seeing low adoption despite early 2024 launches of AI PC with Copilot+?

The launch of AI PCs in early 2024 has seen a lukewarm reception, with low penetration rates (around 10% of shipments). One key challenge is that the first generation of AI PCs is equipped with ARM-based CPUs (Qualcomm 's Snapdragon X-series), which is relatively new to the commercial PC market, currently accounting for only 14% of the personal PC space. Additionally, most business software is optimised for x86 or x64 architectures, leading to potential compatibility issues with ARM-based CPUs. Many corporations have delayed purchases, awaiting standardised specifications like those offered by x86 chips in AI PCs.

Microsoft recently confirmed that, starting in November 2024, Intel and AMD chip models will be able to support the AI features of Copilot+ PCs. Intel's latest AI-chips set, Core Ultra 200V processors, offering 120 TOPS of AI processing power far—surpassing Snapdragon X Plus's 45 TOPS (barely meets the minimum threshold to be considered an AI PC). This is expected to accelerate the transition to AI-enabled commercial PCs in 2025, as Intel controls over 70% of the x86 PC market. We anticipate that Intel-powered AI PCs will set the processor standard for the AI PC category.

Al performance comparison: Intel vs. AMD vs Qualcomm



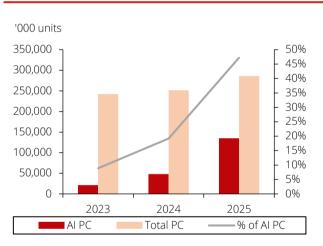
Source: DBS Bank

Al PC growth to reach 180% y/y in 2025, beating consensus

We expect the inflection point for AI PCs to occur in early 2025, following the launch of x86-based AI PCs in November 2024. The adoption of AI PCs, particularly within the commercial segment, is anticipated to gain momentum in 4Q24 and accelerate throughout 2025. We forecast AI PC shipments to grow by 180% y/y in 2025, exceeding the market expectation of 166% and accounting for 51% of overall PC shipments.

Major commercial PC players, such as Lenovo, with significant exposure to this market, are well-positioned to benefit from the commercial AI PC replacement cycle.

AI PC shipments and penetration



Source: DBS Bank, Gartner

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Stock implications

We expect hardware downstream vendors with growing Al exposure to benefit from the uptrend in Al device adoption. Component suppliers are poised to capitalise on rising endmarket demand for Al smartphones and Al PCs.

Smartphone and PC vendors

Lenovo (BUY, TP: HKD13.6)

Lenovo is the market leader in PCs with aggressive AI PC development, and is well-positioned for the inflection point in AI PC adoption that is expected in 2025. The company has a strong pipeline for expanding its AI PC offerings through 2024 and 2025, including the latest generations of ThinkPad and ThinkBook by the end of 2024, as well as Yoga-series and IdeaPad-series models from late 2024 to early 2025. We forecast Lenovo's AI PC shipments to surge by 125.9% and 153.8% in FY3/25F and FY3/26F, respectively, representing 20% and 47% of total PC shipments.

We raised our earnings forecasts by 5.3% for FY3/24F and 9.5% for FY3/25F, reflecting stronger AI PC shipments and a favourable product mix shift towards higher-premium PCs. We maintain our BUY rating on the stock with an increased TP of HKD 13.60, based on 13x forward P/E, in line with historical averages.

Xiaomi (BUY, TP: HKD31.0)

The company is launching the most competitive AI flagship smartphone among Android peers, marking the first smartphone powered by Snapdragon's next-gen AI-optimized SoC. This positions the company to effectively capitalise on the growing trend of AI smartphone adoption in FY25. We anticipate that higher-than-expected XM15 shipments will further increase Xiaomi's premium phone mix to 20.1% in FY24F and 22.9% in FY25F, up from 17.4% in FY23F. Reflecting this stronger-than-expected XM15 shipment and a boost in gross margins within the hardware business, we raised our earnings forecasts by 0.8% for FY24F and 4.6% for FY25F. We maintain our BUY rating on the stock with a higher target price of HKD 31.0, based on an unchanged valuation of 27x forward P/E, consistent with historical averages.

Component suppliers

BYDE (BUY, TP: HKD 45.0)

The anticipated AI smartphone adoption is expected to increase demand for more complex chassis and structural components, designed to improve heat management and accommodate larger batteries for extensive edge AI computing. BYDE has expanded its exposure to iPhone components, now covering approximately 40% of iPhone Pro and Pro Max shipments following its acquisition of Jabil's mobile business. As a key supplier of upgraded chassis components for iPhone 16 and other major Android brands, BYDE is well-positioned to benefit from specification upgrades in chassis design, which should boost the ASP and gross margin of its smartphone component business. We maintain our BUY rating on the stock, with an unchanged target price of HKD 45.0.

AAC Tech (BUY, TP: HKD 43.0)

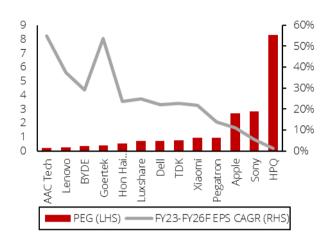
The adoption of AI is expected to shift smartphone controls from touch-focused to voice-focused interactions, driven by the increasing use of AI assistants. As a result, demand for microphones with improved signal-to-noise ratio (SNR) in smartphones is expected to rise. AAC Tech, a key acoustic supplier for Apple and other Android brands, is well-positioned to benefit from upgrades in both the number of microphones per device and enhanced SNR as AI smartphone adoption grows. We anticipate gross margin expansion driven by higher ASPs and an improved product mix in microphone components, leading to earnings growth of 183% and 23.4% in FY24F and FY25F, respectively. We maintain our BUY rating on the stock with an unchanged target price of HKD 43.0.

Valuations for HK-listed downstream plays are attractive.

Most downstream players display accelerating growth, driven by Al device adoption. Our picks, AAC Tech, BYDE, Lenovo, and Xiaomi, are trading at attractive PEG ratios compared to peers. AAC Tech's 0.28 and BYDE's 0.35 are below the component supplier average of 0.57, while Lenovo's 0.28 and Xiaomi's 0.95 are well below the vendor average of 2.63. All are trading below the downstream players' average PEG ratio of around 1.52.



Downstream plays - PEG comparison



Source: Visible Alpha, DBS

Time taken for new technologies to become mainstream

New technology	year of breakthrough	Applications that make the technology become mainstream	release date
Smartphone (iPhone)	2007	WhatsApp	2009
4G networks	2009	Online streaming (Twitch, YouTube live)	2011
Broadband	1999-2000	BitTorrent (P2P sharing)	2001
World Wide Web	1989-1990	Mosaic (first browser to display images in line with text)	1993

Source: DBS Bank, Internet Source

Important events to watch in 4Q24

Events to watch	Launch of Xiaomi 15 flagship	Official release of Apple Intelligence (iOS18.1)	First PC with Intel's Core Ultra 200V Chip set
Expected date	23-Oct-24	28-Oct-24	Nov-24
Events to watch	Launch of Xiaomi 15 flagship	Official release of Apple Intelligence (iOS18.1)	First PC with Intel's Core Ultra 200V Chip set

Source: DBS Bank, Internet Source

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Peers valuation

				Target		Mkt		PE			Yield	–					
			Price	Price I	Recom	Сар	Fiscal	24F	25F	24F	25F	24F	25F	24F	25F	24F	25F
Company Name	Code Cı	ırrency	Local\$	Local\$		US\$m	Yr	Х	Х	%	%	х	х	Х	Х	%	%
AAC Technologies*	2018 HK	HKD	31	43.00	BUY	4,765	Dec	16.2	13.2	1.8	2.3	1.5	1.3	6.7	5.8	9.3	10.6
Byd Electronic (Intl.)*	285 HK	HKD	32.4	45.00	BUY	9,362	Dec	14.6	10.4	2.1	2.9	2.1	1.8	6.2	5.1	15.0	18.8
Lenovo Group*#	992 HK	HKD	10.92	13.60	BUY	17,372	Mar	11.5	8.2	3.4	4.7	2.7	2.3	5.3	4.1	26.9	33.2
Luxshare Precn.Ind.'A'*	002475 CH	CNY	43.6	57.00	BUY	43,545	Dec	20.6	17.5	0.4	0.5	4.4	3.5	9.1	7.7	23.7	22.4
Q Technology (Group)*	1478 HK	HKD	4.79	4.12	BUY	728	Dec	12.5	8.1	0.5	0.0	1.0	0.9	4.4	3.2	8.4	11.7
Sunny Optical Tech.(Gp.)*	2382 HK	HKD	51.4	80.00	BUY	7,217	Dec	17.7	13.1	0.4	1.1	2.1	1.8	5.3	3.6	12.4	14.9
Xiaomi*	1810 HK	HKD	23	31.00	BUY	73,672	Dec	27.3	20.6	0.0	0.0	2.9	2.6	16.7	12.9	11.2	12.9

FY24: FY25; FY25: FY26

Source: Thomson Reuters, *DBS HK

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*Share price appreciation + dividends

Completed Date: 15 Oct 2024 09:29:38 (HKT)
Dissemination Date: 15 Oct 2024 18:15:13 (HKT)

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