Neutral

Altium Ltd. (ALU.AX)

Optimising circuit boards since 1985; Initiate at Neutral on balanced risk/reward

ALU.AX	12m Price Target: **A$42.00**	Price: **A$37.39**	Upside: **12.3%**

Altium (ALU.AX) is a leading global provider of electronics design software, specifically for Printed Circuit Boards (PCB), a critical step for the design of electronic devices. Altium is seeing strong momentum from its flagship, desktop based software, Altium Designer, while has significant monetisation opportunities as it transitions this to the cloud (365) and fully leverages its #1 electronic parts marketplace Octopart.

Global TAM of US$4.8bn, with ALU 5% penetrated today and growing towards 8% by FY26E. Altium estimates a core PCB TAM of US$1bn, with Altium 365 (US$0.3bn) and Octopart (US$3.5bn) expanding this opportunity and reinforcing its PCB strength. Altium is targeting US$500mn of revenue by FY26E, a +23% CAGR which although consistent with FY22, is an acceleration on its 5/10Y historical growth CAGRs of +17%/+16% p.a. This reflects (1) completion of perpetual to subscription migration; (2) Enterprise traction; (3) 365 monetisation; and (4) sustained Octopart growth. We are more cautious, forecasting US$395mn (+16% CAGR, -5% vs. consensus).

We initiate at Neutral, given balanced risk/reward, with upside from: (1) FY26 aspirations which are meaningfully ahead of GSe, with ALU mgmt. increasingly confident at their FY22 result; (2) some relative valuation support; and (3) M&A, given its highly strategic assets in the EDA industry. **We see downside from:** (1) Further delaying US$500mn target beyond FY26; (2) Enterprise execution is yet to be proven; and (3) Octopart traffic headwinds do not look to be fully appreciated. **Our 12m TP of A$42/share** implies +12% upside and is based on our A$40.0 fundamental value (85% weight) using 31x FY24E EBITDA (in-line with ALU 3Y avg. premium to profitable AU tech) and our A$51.0 M&A value (15% weight).

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Key Data

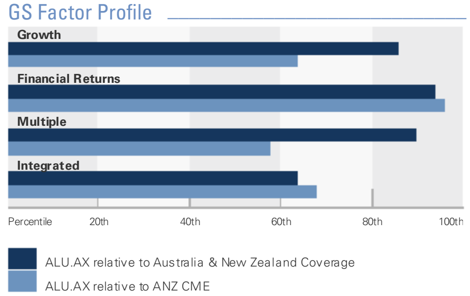
Market cap: A$4.9bn / $3.3bn
Enterprise value: A$4.6bn / $3.1bn
3m ADTV: A$14.6mn / $9.7mn
Australia
ANZ CME
M&A Rank: 2
Leases incl. in net debt & EV?: Yes

GS Forecast

	6/22	6/23E	6/24E	6/25E
Revenue ($ mn)	220.8	255.8	287.7	335.0
EBITDA ($ mn)	81.1	92.3	106.1	129.0
EPS ($)	0.43	0.48	0.56	0.69
P/E (X)	58.8	52.6	45.0	36.3
P/B (X)	12.1	11.4	10.6	9.7
Dividend yield (%)	1.4	1.5	1.7	2.0
Net debt/EBITDA (X)	(2.5)	(2.3)	(2.3)	(2.1)
Frank/Imput (%)	–	–	–	–
CROCI (%)	156.6	133.2	133.9	141.5

	12/21	6/22	12/22E	6/23E
EPS ($)	0.17	0.26	0.22	0.25

GS Factor Profile



Source: Company data, Goldman Sachs Research estimates. See disclosures for details.

Neutral

Altium Ltd. (ALU.AX)

Rating since Nov 20, 2022

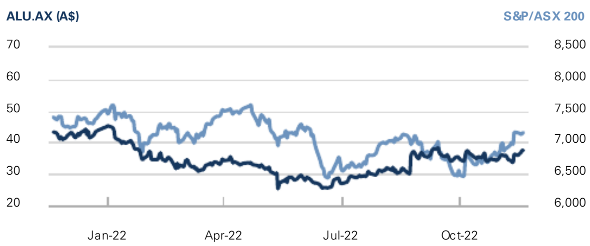
Ratios & Valuation

	6/22	6/23E	6/24E	6/25E
P/E (X)	58.8	52.6	45.0	36.3
P/B (X)	12.1	11.4	10.6	9.7
FCF yield (%)	2.1	2.0	2.4	2.8
EV/EBITDAR (X)	38.5	33.3	28.7	23.4
EV/EBITDA (excl. leases) (X)	38.5	33.3	28.7	23.4
CROCI (%)	156.6	133.2	133.9	141.5
ROE (%)	21.3	22.2	24.4	27.9
Net debt/equity (%)	(72.5)	(75.2)	(78.5)	(81.1)
Net debt/equity (excl. leases) (%)	(72.5)	(75.2)	(78.5)	(81.1)
Interest cover (X)	4,958.3	–	–	–
Days inventory outst, sales	2.5	1.8	1.8	1.8
Receivable days	90.7	80.9	82.0	80.7
Days payable outstanding	NM	NM	NM	NM
DuPont ROE (%)	20.6	21.7	23.6	26.6
Turnover (X)	0.6	0.6	0.7	0.7
Leverage (X)	1.4	1.4	1.4	1.3
Gross cash invested (ex cash) ($)	51.8	59.7	67.4	77.9
Average capital employed ($)	70.0	73.5	69.0	65.6
BVPS ($)	2.09	2.19	2.36	2.59

Growth & Margins (%)

	6/22	6/23E	6/24E	6/25E
Total revenue growth	22.5	15.9	12.4	16.4
EBITDA growth	31.3	13.7	15.0	21.5
EPS growth	54.6	10.6	16.8	23.9
DPS growth	30.8	8.2	13.2	18.6
EBIT margin	31.4	31.4	32.6	34.7
EBITDA margin	36.7	36.1	36.9	38.5
Net income margin	25.6	24.5	25.4	27.0

Price Performance



	□□	□□	□□□
Absolute	20.4%	31.7%	(8.9)%
Rel. to the S&P/ASX 200	19.8%	32.3%	(6.0)%

Source: FactSet. Price as of 18 Nov 2022 close.

Income Statement ($ mn)

	6/22	6/23E	6/24E	6/25E
Total revenue	220.8	255.8	287.7	335.0
Cost of goods sold	--	--	--	--
SG&A	(151.4)	(175.6)	(194.0)	(218.8)
R&D	--	–	–	--
Other operating inc./(exp.)	–	–	–	–
E□□□□□	**□□□□**	**□2□3**	**□□6□□**	
Depreciation & amortization	(11.7)	(12.1)	(12.4)	(12.8)
E□□□	**6□□4**	**□□□2**	**□3□□**	
Net interest inc./(exp.)	(0.0)	0.5	0.6	0.6
Income/(loss) from associates	--	--	--	--
□□□□tax p□ofit	**6□□4**	**□□□□**	**□4□3**	
Provision for taxes	(12.8)	(18.2)	(21.2)	(26.3)
Minority interest	–	–	–	–
Preferred dividends	–	–	--	--
N□t inc□ (p□□□□xc□ptionals)	**56□6**	**62□6**	**□3□□**	
Post-tax exceptionals	(1.2)	–	–	–
N□t inc□ (post□□xc□ptionals)	**55□3**	**62□6**	**□3□□**	
E□S (basic, p□□□□xc□pt) ($)	**□□43**	**□□4□**	**□□56**	
E□S (dilut□d, p□□□□xc□pt) ($)	**□□43**	**□□4□**	**□□55**	
E□S (basic, post□□xc□pt) ($)	**□□42**	**□□4□**	**□□56**	
E□S (dilut□d, post□□xc□pt) ($)	**□□42**	**□□□4**	**□□55**	**□□**
DPS ($)	0.35	0.38	0.43	0.51
Div. payout ratio (%)	81.6	79.8	77.4	74.1

Balance Sheet ($ mn)

	6/22	6/23E	6/24E	6/25E
Cash & cash equivalents	199.3	216.8	243.3	275.6
Accounts receivable	52.5	60.8	68.4	79.7
Inventory	1.2	1.3	1.5	1.8
Other current assets	20.9	20.9	20.9	20.9
Total current assets	**273.9**	**299.9**	**334.2**	**378.0**
Net PP&E	3.8	3.8	3.8	3.8
Net intangibles	43.9	34.4	24.9	15.4
Total investments	3.3	3.3	3.3	3.3
Other long-term assets	56.5	56.5	56.5	56.5
Total assets	**381.5**	**398.0**	**422.7**	**457.0**
Accounts payable	20.1	23.2	26.1	30.4
Short-term debt	--	–	--	--
Short-term lease liabilities	--	–	--	--
Other current liabilities	69.3	69.3	69.3	69.3
Total current liabilities	**89.4**	**92.6**	**95.5**	**99.7**
Long-term debt	–	–	–	--
Long-term lease liabilities	–	–	--	--
Other long-term liabilities	17.2	17.2	17.2	17.2
Total long-term liabilities	**17.2**	**17.2**	**17.2**	**17.2**
Total liabilities	**106.6**	**109.8**	**112.7**	**117.0**
Preferred shares	–	–	–	–
Total common equity	**274.9**	**288.2**	**310.0**	**340.1**
Minority interest	**--**	**--**	**--**	**--**
Total liabilities & equity	**381.5**	**398.0**	**422.7**	**457.0**
Net debt, adjusted	(199.3)	(216.8)	(243.3)	(275.6)

Cash Flow ($ mn)

	6/22	6/23E	6/24E	6/25E
Net income	69.4	80.2	93.7	116.2
D&A add-back	11.7	12.1	12.4	12.8
Minority interest add-back	–	–	–	–
Net (inc)/dec working capital	4.7	(5.3)	(4.8)	(7.2)
Other operating cash flow	(13.3)	(17.6)	(20.6)	(25.6)
Cash flow from operations	**72.5**	**69.3**	**80.7**	**96.1**
Capital expenditures	(1.5)	(2.6)	(2.9)	(3.3)
Acquisitions	–	–	–	–
Divestitures	–	–	–	–
Others	(21.5)	--	--	--
Cash flow from investing	**(23.0)**	**(2.6)**	**(2.9)**	**(3.3)**
Repayment of lease liabilities	–	–	--	--
Dividends paid (common & pref)	(40.1)	(49.2)	(51.3)	(60.5)
Inc/(dec) in debt	--	--	--	–
Other financing cash flows	0.0	0.0	0.0	0.0
Cash flow from financing	**(40.1)**	**(49.2)**	**(51.3)**	**(60.5)**
Total cash flow	**7.7**	**17.5**	**26.5**	**32.3**
Free cash flow	71.0	66.8	77.8	92.8

Source: Company data, Goldman Sachs Research estimates.

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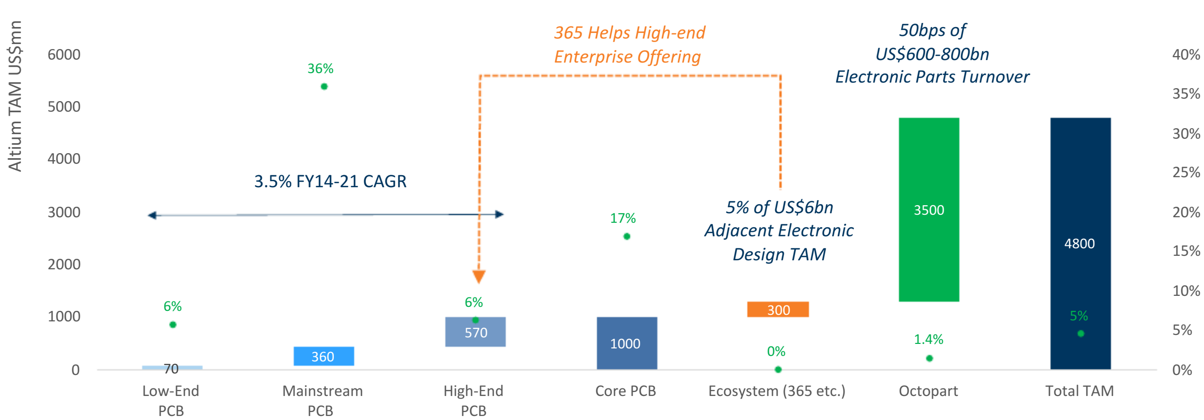
PM Summary: Strong earnings potential but not without risk; Initiate at Neutral

A global provider of electronics design software: We initiate coverage on Altium (ALU.AX), a leading provider of design software for Printed Circuit Boards (PCB), a critical step for the design of any electronic product globally, and owner of Octopart, the #1 global electronics component marketplace, with a Neutral rating and 12-month target price of A$42, representing +12% potential upside.

We estimate Altium has a global TAM of US$4.8bn, with ALU 5% penetrated today and growing towards 8% by FY26E. This comprises a core PCB TAM of US$1bn (which has grown +3.5% p.a. across FY14-21), while its transition to the cloud opens US$300mn in additional lead/transaction fees, but more importantly supports share gains within the PCB market (particularly Enterprise). Finally, we estimate Octopart has a US$3.5bn TAM based on our estimated 50bps take-rate of the US$600-800bn electronic part market. We also see this business and associated data potential as highly strategic for Altium's PCB & 365 offering.

Exhibit 1: We estimate ALU has a US$4.8bn addressable TAM
Altium TAM US$bn, FY22 penetration (RHS)



Source: Company data, Goldman Sachs Global Investment Research

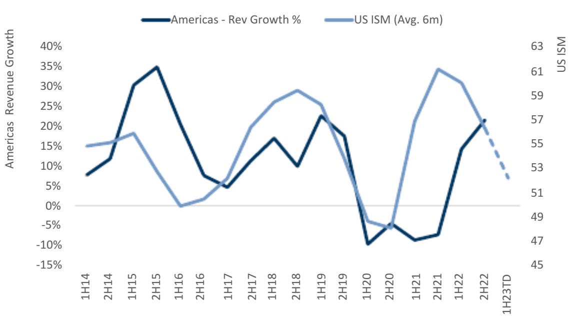
Strong growth profile, with upside towards US$500mn in FY26 on successful execution (GSe US$395mn, +16% CAGR, =79% target): Given the increasing complexity of electronics design and divergent market for components globally, we believe that Altium suite of products (Designer, 365 & Octopart) are becoming increasingly important for its end users, both individually and collectively. ALU is targeting US$500mn of revenue by FY26, which implies a FY22-26E rev CAGR of +23%, consistent with the growth delivered in FY22, but a meaningful acceleration on both its 5 & 10Y CAGR (+17% & +16% p.a. respectively). This acceleration reflects (1) completion of perpetual to subscription migration; (2) Enterprise traction; (3) 365 monetisation; and (4) sustained Octopart growth. We are more cautious, forecasting US$395mn (+16% CAGR, -5% vs. Visible Alpha Consensus Data), but we note ALU did increase its confidence in these targets at FY22 result, removing the prior 10-20% M&A component. Specifically Altium is targeting:

US$350mn from Design & Circuit Board (GSe US$289mn, +14% CAGR, =83% target): Given existing product momentum is translating into revenues through the transition to Term Based Licenses, upsell to Professional/Enterprise, and more disciplined pricing, we expect Altium to continue to deliver strong growth within its PCB segment. However, for the company to hit its US$350mn revenue target, we believe it will need to be truly successful in the more competitive Enterprise market, navigate ongoing lock downs and license compliance in China, and offset FX headwinds that are impacting revenues.

US$50mn from monetizing 365 (GSe US$19mn, =38% target): We are positive on the product and the collaboration/efficiency benefits (within PCB teams, but also with other electrical/mechanical/manufacturers). Industry feedback is positive on the benefits and highlights a willingness to pay - and hence we believe it is likely to support Altium subscription ARPU (higher pricing) and Enterprise subscriber growth. However, we are cautious on any transaction based model given Altium's relative position in the broader engineering, design & manufacturing ecosystem.

Exhibit 2: Americas' boards and systems revenue growth is correlated with the US ISM, which measures manufacturing production levels

Americas B&S Revenue Growth, vs. US ISM (Avg. 6m)



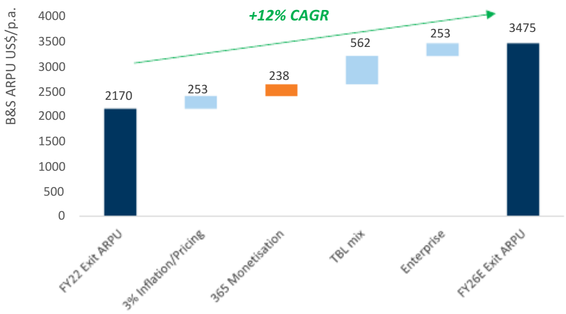
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 3: Altium needs to deliver a meaningful acceleration in ARPU or subscriber growth to hit its FY26 targets

	FY22A	FY23E (guidance implied)	FY26E Targets		
			Low	Mid	Target
Subscribers	56,912	59,925	75,000	90,000	100,000
4Y growth p.a. (1Y for FY23E)	4,522	3,013	4,522	8,272	10,772
ARPU	2056	2253	3733	3111	1750
4Y growth p.a. (1Y for FY23E)	7.8%	9.6%	16%	11%	-4%
Recurring	117	135	280	280	175
Non-Recurring	52	60	70	70	175
Total Revenue	**169**	**195**	**350**	**350**	**350**

Source: Company data

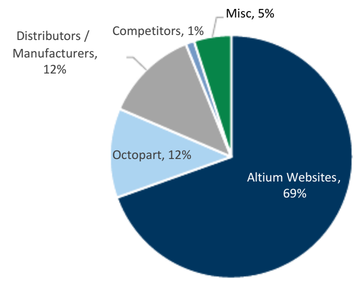
Exhibit 4: We estimate Altium can grow its ARPU by >10%, through pricing, & mix shift towards TBL & Enterprise



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 5: The majority of Altium 365's outgoing traffic goes to ALU websites, Octopart or other industry participants, with limited overlap with other software verticals

Altium 365 last 12m outgoing traffic share

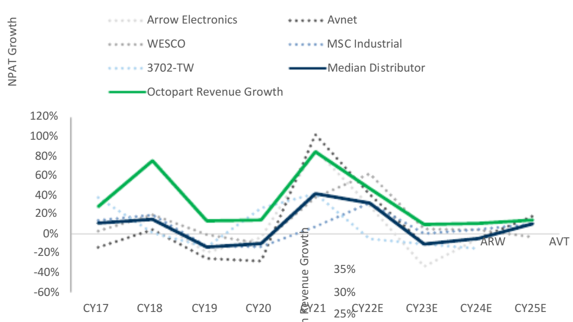


Source: SimilarWeb

US$100mn from Octopart (GSe US$87mn, +14% CAGR, =87% target): Similarly we see the Octopart marketplace as a unique offering for Altium, which has become critically important during the current global chip shortage & divergence of China and Western economies. We see yield potential for Octopart, given the scale it has now built (taking share from distributor websites). However, we are cautious on the volume outlook, noting that the step change of the recent chip shortage is unlikely to repeat, similarweb traffic data is trending down, and consensus forecast a meaningful slowdown in distributor NPAT - historically tightly correlated with Octopart revenues. We do believe that Octopart's knowledge around mechanical/physical equivalence of parts presents a powerful opportunity to monetize through a 'premium' subscription/bundled with 365 which could diversify its revenue base.

Exhibit 6: Octopart revenue growth is highly correlated with distributor profit growth

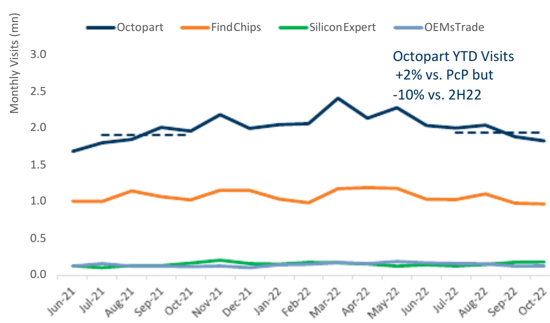
Electronic Distributors NPAT Growth (CY, LC)



Source: Visible Alpha Consensus Data

Exhibit 7: Octopart continues to grow visits yoy

Monthly Visits (mn)



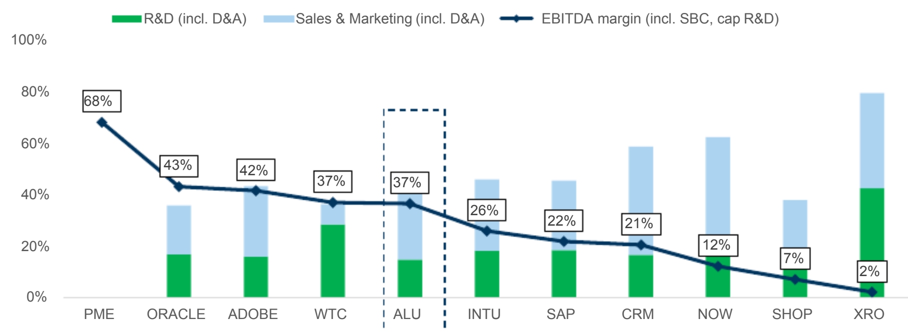
Source: SimilarWeb

Margins of 38-40% by FY26 (GSe 40.4%): Altium's margin is relatively high, and has remained largely steady since FY18, with the solid revenue growth offset by the shift towards subscription, Covid and reinvestment in key priorities (Enterprise, 365 cloud hosting). Surprisingly the FY23 guidance does imply declining margins at the mid-point

(35-37% guidance, vs. 37% FY22), attributed to ongoing 365 investment, staff cost inflation and higher compliance and regulation opex. However, the FY26 targets of 38-40%, although below the prior flight path guidance of 39-44%, do still imply c.200bps of margin expansion at the mid-point (GSe +360bps to 40% in FY26), which reflects the accelerating revenue growth and monetisation of early Enterprise/365 investment, partly offset by lower Octopart revenues (23% revenue in FY22 vs. 20% target). **Overall ALU screens** relatively well on a fully capitalized EBITDA margin basis against ANZ Technology peers (mid pack), best in class against other electronic design competitors and top quartile for Octopart against mature global classifieds.

Exhibit 8: ALU tracks towards the upper end of margins vs. local large cap tech, and global enterprise peers

Key peers, LTM EBITDA margin (incl. SBC, capitalised R&D spend)



Source: Company data

We initiate at Neutral, given balanced risk/reward, with upside from: (1) FY26 aspirations which are meaningfully ahead of GSe, with ALU mgmt. increasingly confident in these at their FY22 result; (2) some relative valuation support; and (3) M&A, given its highly strategic assets in the EDA industry. **We see downside from:** (1) Further delaying US$500mn target beyond FY26; (2) Enterprise execution is yet to be proven; and (3) Octopart traffic headwinds do not look to be fully appreciated. **Our 12m TP of A$42/share** implies +12% upside and is based on our A$40.0 fundamental value (85% weight) using 31x FY24E EBITDA (in-line with ALU 3Y avg. premium to profitable AU tech) and our A$51.0 M&A value (15% weight).

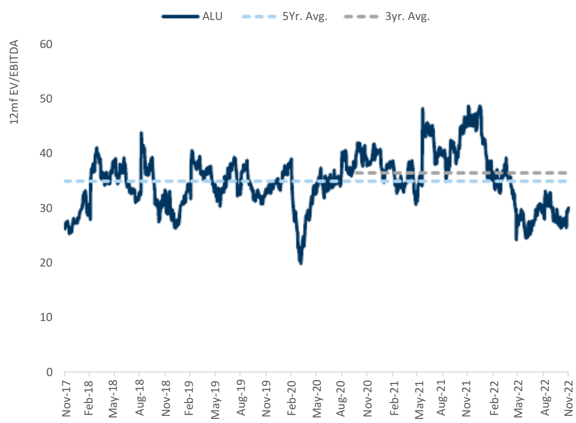
Exhibit 9: We value ALU at 31x FY24E EBITDA, implying a TP of A$42
ALU TP derivation

GS Altium Valuation				
Fundamental Valuation EV/EBITDA	**FY24E EBITDA A$mn**	**Multiple (X)**	**Value US$mn**	**A$mn**
Group	106	31x	3,341	4,987
Fundamental Valuation (85% Weighting)				**40.0**
M&A Valuation EV/EBITDA	**FY24E EBITDA A$mn**	**Multiple (X)**	**Value US$mn**	**A$mn**
Group	106	42x	4,458	6,653
M&A Valuation (15% Weighting)				**51.0**
GS 12m Target Price (A$/Share)				**42.0**

ALU Fundamental Valuation Derivation	12mf EV/EBITDA
Profitable ANZ Tech Comps	28x
ALU premium vs. (3yr. Avg.)	14%
GS Target Multiple	**31x**
ALU 3 Yr. Avg.	36x
GS Multiple vs. Avg.	-12%

Source: Company data, FactSet, Goldman Sachs Global Investment Research

Exhibit 10: ALU is trading -15% below its 5yr. average EV/EBITDA multiple
ALU 12mf EV/EBITDA



Source: FactSet

Exhibit 11: We sit below consensus expectations given our more cautious revenue outlook
ALU GSe vs. consensus (US$mn)

	FY23E		FY26E	
	GSe.	vs. Cons	GSe.	vs. Cons
Boards And Systems	194.8	-3%	307.9	-2%
Octopart	59.6	-3%	83.7	-14%
Total Revenue	**255.8**	**-3%**	**394.6**	**-5%**
EBITDA	**92.3**	**-4%**	**159.5**	**-4%**
NPAT	**62.6**	**-7%**	**114.0**	**-7%**

Source: Goldman Sachs Global Investment Research, Visible Alpha Consensus Data

Exhibit 12: We note design peers trade at varied multiples vs. historical averages

	Vertical				12mf EV/EBITDA		
	PCB	PLM	MCAD	CAE	Current	3Yr. Avg.	Disc.
ALU	X				30x	35x	-14%
PCB Peers							
Cadence	X				27x	26x	2%
Siemens	X	X	X	X	12x	12x	1%
Zuken	X				7x	9x	-17%
Electronic Design Peers							
Autodesk		X	X	X	25x	36x	-33%
Dassault		X	X	X	22x	25x	-12%
PTC		X	X	X	21x	24x	-13%
ANSYS				X	23x	28x	-17%
Synopsys					24x	23x	7%

X denotes company software has this functionality.

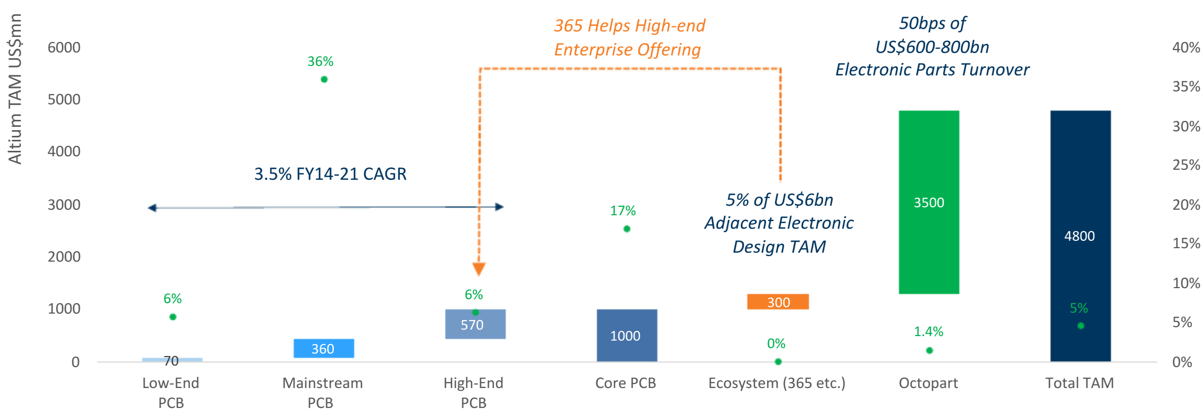
Source: Goldman Sachs Global Investment Research, FactSet

Key upside/downside risks: (1) Successful execution on FY26 aspirations; (2) Step up in investments to drive Enterprise/365 success causing near-term margin dilution; (3) Octopart volume outlook; (4) Impact of higher pricing on subscription momentum; (5) M&A as a target; and (6) accretive/dilutive M&A.

The central EDA design platform a potential US$4.8bn opportunity

Altium operates as a specialist in the Printed Circuit Board (PCB) design segment of the global electronic device industry, while having monetisation opportunities in the broader electronic design software industry (through Altium 365) and the global electronic components market (through its website Octopart). **We estimate Altium has a global TAM of US$4.8bn**, across these three markets.

Exhibit 13: We estimate ALU has a US$4.8bn addressable TAM
Altium TAM US$bn, FY22 penetration (RHS)



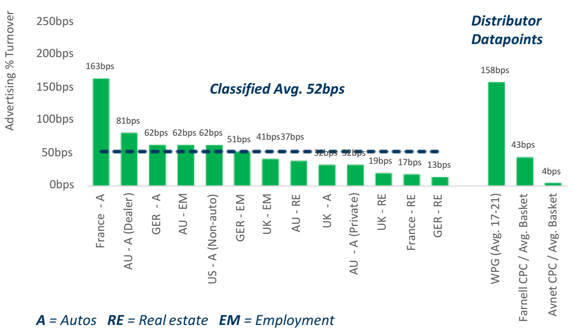
Source: Company data, Goldman Sachs Global Investment Research

US$1bn core PCB market: Altium estimates its core PCB software, Altium Designer, has a US$1bn TAM, which has grown +3.5% p.a. in recent years (FY14-21), with Altium FY22 revenues implying 17% revenue penetration (or c.25% subscriber penetration of 250k sub TAM). This encompasses the entry, mid & high end markets, with Altium particularly strong in the mid-market (US$360mn TAM, 36% penetrated), but the company is more recently focused on taking share in the high-end market (US$570mn TAM, 6% share).

US$300mn Altium 365: Through transitioning to the cloud, Altium is both improving the quality of its core PCB software, while also directly connecting its design community with manufacturers, component distributors and other software providers. We believe that the 365 solution will drive subscribers & higher pricing within the core PCB market, but over time if the ecosystem meaningfully scales, there is scope to introduce a transaction based charge for any leads that are generated through the ecosystem. We estimate a US$300mn revenue TAM, assuming a 5% fee on the c.US$6bn p.a. of adjacent software spend.

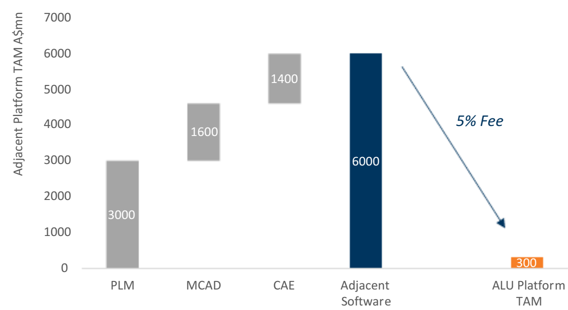
US$3.5bn Octopart opportunity: Altium estimates Octopart, the search engine for electronic parts, operates within the US$600-800bn electronic part supply chain market, with inventory sourced from manufacturers (direct), and distributors (3rd party resellers). Using classified peers and distributors marketing spend as % revenue as a proxy for earnings potential, we estimate Octopart has a TAM of c.US$3.5bn (50bps of US$700bn spend). We also note Octopart has the opportunity to improve its data offering over time - either to manufacturers (inventory demand) or designers (optimal/cheapest part) that it can build out and monetise over time through both distributors and users of its website (potentially supporting 365 subscription pricing).

Exhibit 14: We note Global classifieds monetise c.50bps of Turnover, with distributors spending up to 150bps on marketing
Advertising % Turnover



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 15: Adjacent electronics design software represents a US$6bn TAM, which ALU could monetise through a platform fee



Source: Company data, Goldman Sachs Global Investment Research

Breaking down the path towards ALU's US$500mn in revenue target

Altium has set out targets for US$500mn of revenue by FY26E, with an underlying margin of 38-40% & 100k subscriber target (ALU noted $500mn could be achieved with 75k to 90k higher ARPU subs). This target implies a FY22-26E Rev CAGR of +23%, consistent with the growth delivered in FY22, but a meaningful acceleration on both its 5 & 10Y CAGR (+17% & +16% p.a. respectively).

For Altium to deliver this sustained acceleration in revenue growth, we believe the company needs to execute on: (1) **Dominating the total PCB market,** reflected through higher pricing and subscriber growth in the mid-market, and a rapid acceleration in the Enterprise market; (2) **Re-accelerating its performance in China** (revenues need to triple vs. FY22 levels) through increasing license compliance of the estimated 100k users in China; (3) **Successfully monetizing its early traction on its cloud based Altium 365 product**; and (4) **Continuing to build traffic and yield, while diversifying Octopart revenues**, following an exceptionally strong performance over the last 18 months.

Exhibit 16: We see downside risk to ALU's FY26 $500mn revenue target...
ALU FY26 Target Revenue Bridge A$mn

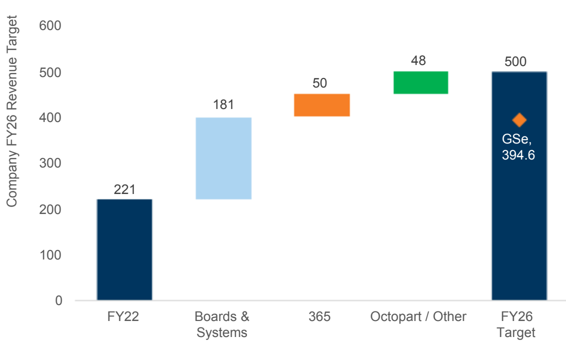
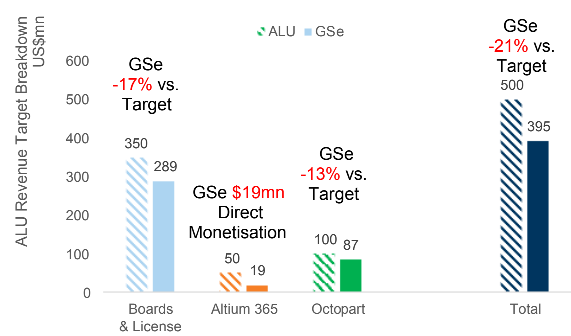


Exhibit 17: ...driven by our more cautious outlook on the core Altium designer product (B&S) and monetisation opportunity for Altium 365
ALU Targets vs. GSe US$mn



Source: Company data, Goldman Sachs Global Investment Research

Driver #1 - Dominating the PCB market & growing towards US$350mn in revenue

The core driver of Altium's growth is to continue taking share of the global PCB market. The company has set out aspirations to earn US$350mn in revenues from the PCB market by FY26, more than double the US$169mn it generated in FY22. To achieve this, the company is aspiring to grow its subscribers from the 57k currently towards 75-100k range (revised from 100k prior target at FY22), alongside meaningfully growing its revenue per subscriber (up to +82% growth to US$3.7k), driven by higher valued Enterprise and Professional subscribers (mix), transitioning towards Term Based Licensing (mix), alongside headline price increases (pricing).

The company did deliver a solid FY22 result, growing PCB revenues +12% (incl. c.5% perpetual to subscription headwind) and guiding towards +15-18% growth in FY23E. However, to hit US$350mn in revenues, growth needs to meaningfully accelerate from here, requiring +20% p.a. growth across FY22-26E. We remain more cautious on these targets, forecasting US$289mn of FY26 PCB revenue, and we highlight the following key downside risks to sufficiently accelerating its growth:

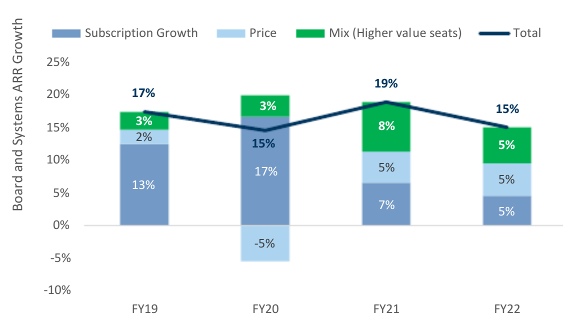
1. **Navigating potential weaknesses in the US (& global) economies** - noting the US PMI index has faded in early FY23, typically correlated with US revenue growth.
2. **Re-accelerating its core subscriber momentum** - this may be challenging particularly if ALU looks to continue raising headline pricing (or reduce discounting).
3. **Successfully dominating the Enterprise market**, and achieving its targeted c.$75mn in revenues, given increased competition, product requirements and differences in go to market.
4. **Successfully executing in China** - where ALU has previously expected a similar revenue contribution (vs. 13% in FY21) - which would imply tripling of revenues vs. lockdown impacted FY22 - we note license compliance remains an ongoing issue (& opportunity) given the c.100k user base - but geopolitical risks could make this challenging.

Exhibit 18: Altium needs to deliver a meaningful acceleration in ARPU or subscriber growth to hit its FY26E targets

	FY22A	FY23E (guidance implied)	FY26E Targets Low	Mid	Target
Subscribers	56,912	59,925	75,000	90,000	100,000
4Y growth p.a. (1Y for FY23E)	4,522	3,013	4,522	8,272	10,772
ARPU	2056	2253	3733	3111	1750
4Y growth p.a. (1Y for FY23E)	7.8%	9.6%	16%	11%	-4%
Recurring	117	135	280	280	175
Non-Recurring	52	60	70	70	175
Total Revenue	**169**	**195**	**350**	**350**	**350**

Source: Company data, Goldman Sachs Global Investment Research

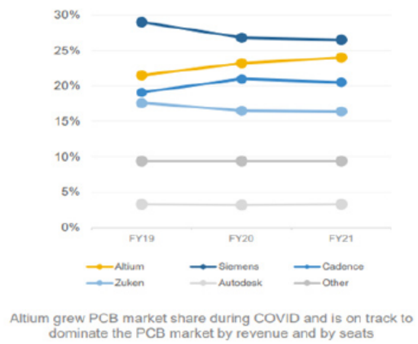
Exhibit 19: Subscriber growth has remained muted as pricing has increased, except in FY20 where price discounting took place



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 20: According to the company, ALU has grown its share as a % of the PCB market over time, at the expense of Siemens/Zuken

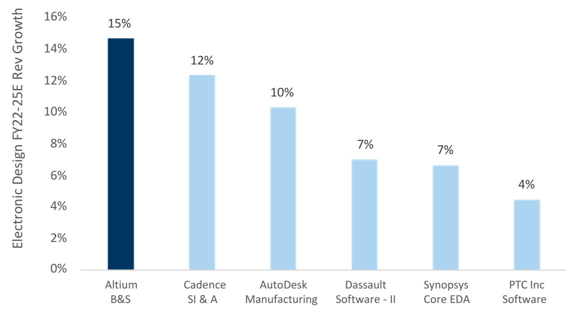
PCB Market Share over time



Source: Company Data, Altium

Exhibit 21: We forecast Altium's B&S division will outgrow other electronic design peers

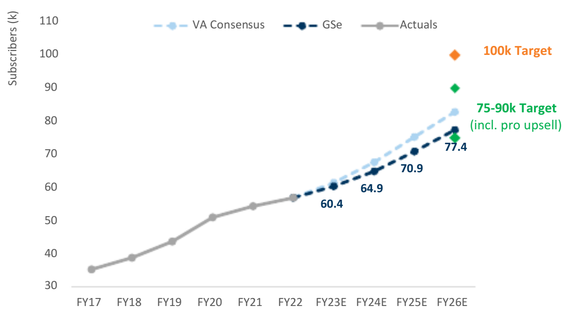
FY22-25E Revenue CAGR, (*PTC/Cadence FY22-24)



Source: Visible Alpha Consensus Data, Company data, Goldman Sachs Global Investment Research

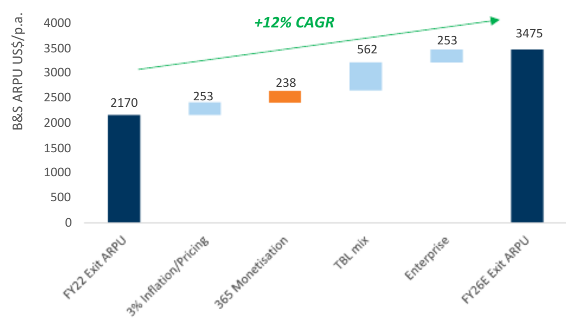
Exhibit 22: We sit below consensus and towards the bottom end of targets given we believe ALU will pursue price/upsell

ALU Subscriber Forecast, VA Consensus and Company Targets



Source: Company data, Goldman Sachs Global Investment Research, Visible Alpha Consensus Data

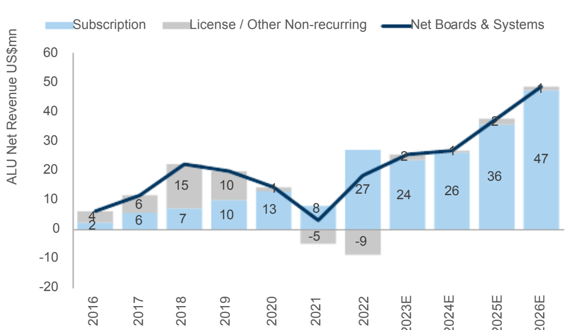
Exhibit 23: We estimate Altium can grow its ARPU by > 10%, through pricing, and mix shift towards TBL & Enterprise



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 24: Decreased license revenues has been a headwind for boards and systems growth

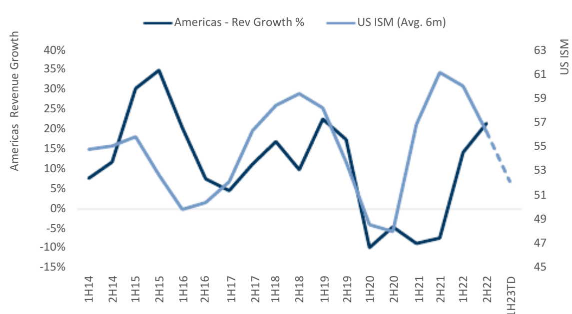
Boards and Systems Net Revenue Growth



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 25: America's boards and systems revenue growth is correlated with the US ISM, which measures manufacturing production levels

Americas B&S Revenue Growth, vs. US ISM (Avg. 6m)



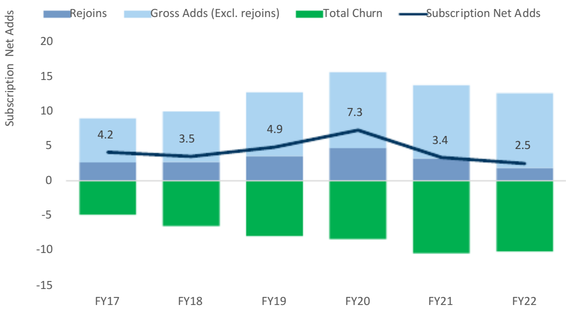
Source: Company data, Goldman Sachs Global Investment Research

Accelerating subscriber growth key to hitting revenue targets

Based on recent growth trends, Altium will need to see a meaningful acceleration in its subscriber growth to hit its targeted 75-100k range. Although a component of this will come through success in the Enterprise market, Altium still needs to accelerate its growth to hit the bottom end of the target range. We consider a range of factors that could drive this:

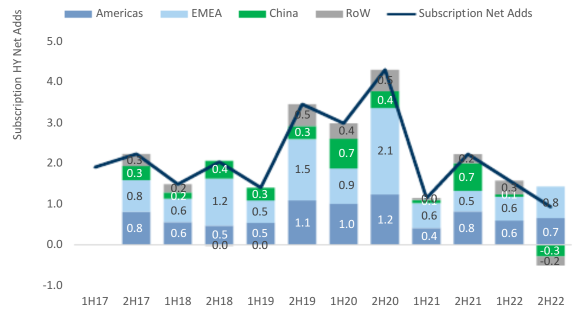
- **Migration towards Term Based Licenses**: Given the higher likelihood of renewals, the shift from perpetual to TBL is positive for Altium overall subscriber growth, with ALU driving this migration through price increases on perpetual licenses, and given the upfront savings of TBL, we would expect accelerated migration during any macro-weakness.
- **Improving Churn**: Churn has averaged 19% across the last 6Y period, peaking at 20.3% in FY21, well above the 15.5% churn in FY17. If by improving its customer service, bundling of products such as A365, or improved product quality, Altium could reduce its churn back towards FY17 levels there is scope to meaningfully improve sub growth (i.e. FY22 net-adds would have been +65% to +4.2k - noting every 1% churn reduction = +0.6k subs p.a).
- **Increased marketing spend**: With Altium having a pretty steady CAC of US$5-6k/sub, should it look to meaningfully step up its marketing investment there could be a corresponding acceleration in subscriber growth.
- **Pricing**: Lower pricing or increased discounting could drive stronger subscriber growth (at the expense of ARPUs). We note the period of significant discounting through FY20 was associated with the strongest net adds on record for Altium - however given we expect sustained ARPU growth going forward, this lever is unlikely to be utilized.
- **Competition/Product enhancement**: Greater R&D and product functionality could improve the subscriber cadence for Altium.
- **China License compliance**: At the company's FY22 result, Altium noted 1/5 of licenses in China required in person license compliance which was difficult during the current lockdowns. Hence, although there are an estimated 100k users of Altium product in China, ALU only reported 5.7k subscribers in FY22.

Exhibit 26: Net adds have moderated given lower gross adds and rejoins, with sustained churn
ALU Subscription Net Adds Breakdown



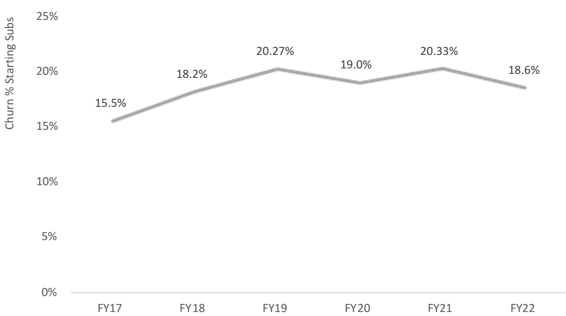
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 27: China and RoW have seen headwinds in recent periods
ALU Subscription Net Adds by Geography



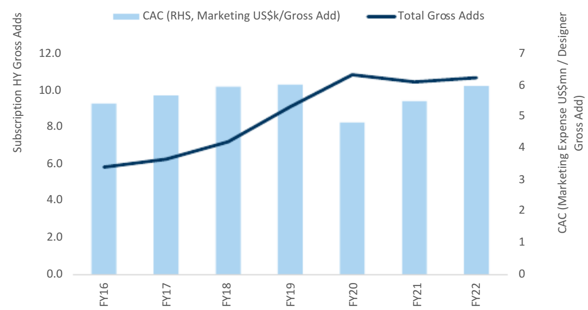
Source: Company data

Exhibit 28: Reducing churn remains a meaningful opportunity for ALU to accelerate its subscriber growth



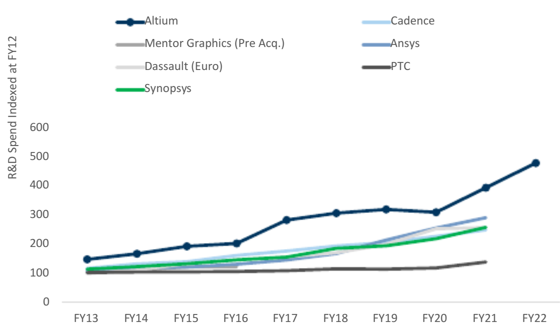
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 29: We note CAC has been relatively steady at US$5-6k over time, which we see as a suitable proxy going forward
ALU Designer Gross Adds vs. CAC (Sales & Marketing / ALU Gross adds)



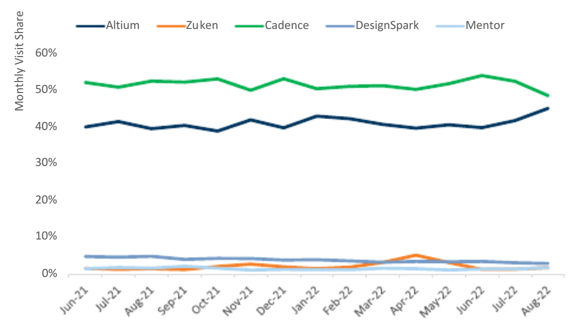
Source: Company data

Exhibit 30: While relative to FY12, Altium has grown R&D spend by the greatest magnitude vs. electronic design peers
R&D Spend (Indexed at FY12)



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 31: Altium has maintained solid visit share, but remains below Cadence, which has a broader portfolio of software
Monthly Visit Share



Source: Similarweb

Higher pricing and Pro upgrades support mass-market ARPU growth

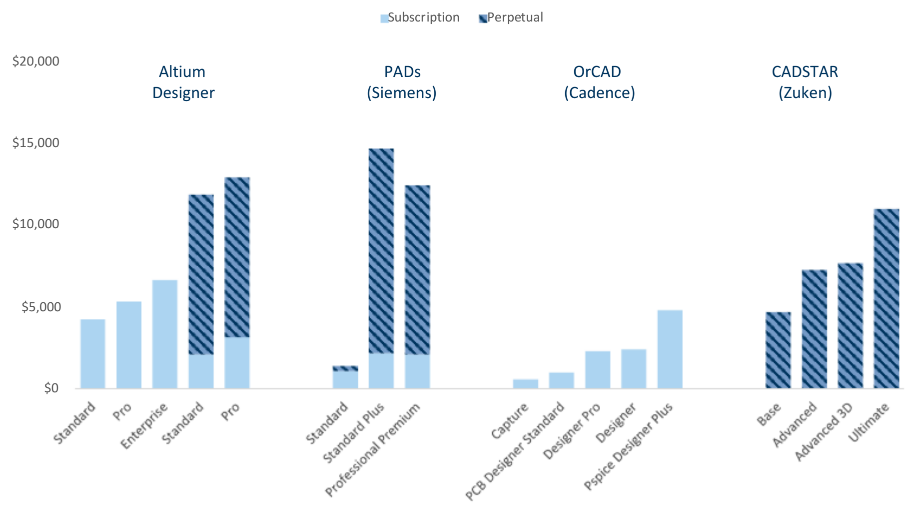
A key driver of FY22 Board & Systems revenue growth was the reduced level of discounting & higher pricing, alongside the increased penetration of Term Based Licenses & Professional/Enterprise products. All three of these factors contributed to a much stronger than expected ARPU growth for the business, which grew +23% for the year (avg. basis), and as previously discussed the acknowledgment that the US$500mn revenue target could be reached through 75-90k higher value subs (10-25k lower than the 100k target).

In our view, expanding ARPU, while steadily growing subscribers is likely to be the key driver of value into the longer term. We remain constructive on the company's ability to continue driving ARPU higher, supported by: (1) Breaking the discounting cycle to hit subscriber KPI's; (2) The current inflationary environment supporting price inflation across most software vendors; (3) the ongoing investment in R&D from Altium, and monthly feature updates, justifies improved pricing on a like for like product; and (4) Up-sell towards its Professional product, with its greater inclusions and value is also supporting ARPU growth (Professional pricing is +20-30% more expensive).

However perhaps the most important driver of ALU subscription ARPU is the shift towards TBL given their annual pricing is c 2X what the annual maintenance fee is of a perpetual license. Hence over time, we would expect sustained subscription ARPU growth, at the expense of its perpetual license payments. In Exhibit 34, we estimate that for every 10% increase in penetration of TBL, there is a 9% increase in subscription ARPU.

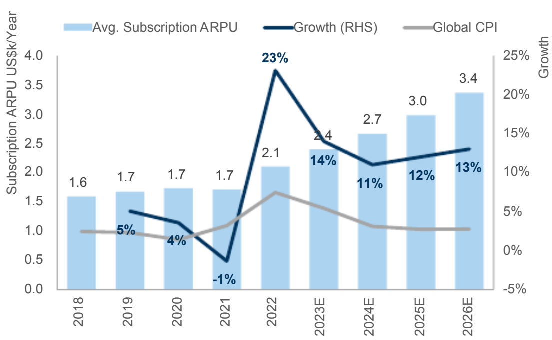
Looking forward, we do however note that current FX is a headwind for ALU's US$ earnings base (we estimate -4% FY23 impact for ARPUs vs. FY22), in particular noting that: EMEA/China/Asia represent 31%/10%/4% of revenues with Spot FX -9%/-9%/-8% vs. FY22. However, vs. Jun-22 levels (used for Exit ARR), this represents a smaller -1% headwind.

Exhibit 32: ALU current mid market pricing vs. peers
ALU Pricing Model



Source: Company data

Exhibit 33: Boards & Systems Exit ARPU grew +23% in FY22
Boards & Systems ARPU US$mn, Growth (RHS)



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 34: We estimate every 10% increase in TBL for Altium could drive a +9% increase in its subscription ARPU

Scenario Analysis - Mix impact on ARPU			GS Comment
Term Based License			
Standard	4,235		*US$ pricing p.a.*
Perpetual License			
Upfront cost	9,775		*Upfront payment US$*
Standard	2,095		*US$ pricing p.a.*
Altium FY22 Metrics			
FY22 Subscribers	#	%	
TBL	6,370	*11%*	*Gse, assume no churn*
Perpetual	50,542	*89%*	*balancing*
Total	**56,912**		
Implied ARPU	**2335**		*No discount, all standard*
Scenario - 10% increase in TBL subs			
Subscriber Mix	#	%	
TBL	12,061	*21%*	
Perpetual	44,851	79%	
Resulting ARPU	**2549**		*10% increase in TBL mix increases ARPU +9%.*
Increase	9.2%		

Source: Company data, Goldman Sachs Global Investment Research

Enterprise success the greatest opportunity for Altium

Given the existing product momentum that Altium has, we believe the most meaningful upside opportunity is for it to succeed in taking meaningful share in the Enterprise PCB market, given this segment is its least penetrated, yet has the largest revenue opportunity (ALU is 6% of the US$570mn TAM). These customers represent +US$1mn ARR p.a., consistent with Zuken's top 20 customers. Although showing solid traction in FY22, a large component of this was converting existing Altium Designer customers to its Enterprise products. Hence looking forward, the key to success will be the companies' ability to win new customers of competitors and grow its share.

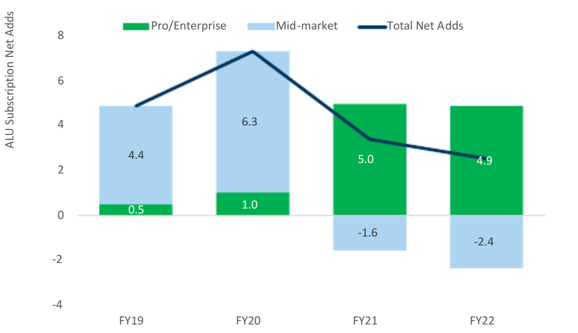
We understand that the key value proposition for Altium in the Enterprise market is that it has very attractive pricing (i.e. c.US$6-7k vs. c.$20k+ from competitors), yet its product functionality is broadly in-line with peers - we estimate to be c.95% comparable (only specific high-end use cases are unsuitable). However, there are meaningful differences within the Enterprise market (vs. mass market), that Altium will need to overcome: (1) a much more bespoke sales approach, and often longer dated sales cycles; (2) a greater focus on this market from competitors vs. the mass-market; (3) integrated competitor offerings that allow for bundling and one-stop-shop simplicity; and (4) Larger team sizes and collaboration requirements - which prior to 365 was a key product gap for Altium, making it difficult for teams to work on one design. To address these challenges and sustain its early success, ALU is taking a number of steps, including:

1. **Continuing to invest in its Enterprise sales team** with an emphasis on quality of sales people, over pure volume;
2. **Continuing to close product functionality gap**, given ongoing R&D and annual upgrades;
3. **Specializing** in only 4-5 verticals initially to concentrate its efforts;
4. **Leveraging Altium 365,** its cloud based collaboration & integration software, is a key differentiator in the Enterprise market - providing strong process management systems (a key product gap), while allowing Altium to tender for broader Enterprise tenders in a consortium with MCAD/PLM/CAE providers for a holistic solution against the incumbent enterprise competitors (Zuken, MentorGraphics, Cadence);
5. **Improving Octopart data and insights** - which we see as another strategic benefit in the Enterprise market for Altium given the heightened impacts from part availability.

Overall we forecast c.US$50mn of Enterprise revenue by FY26E vs. ALU target of US$75mn.

Exhibit 35: Upsell of ALU designer subs to pro/enterprise plans has driven a large amount of subscription net adds

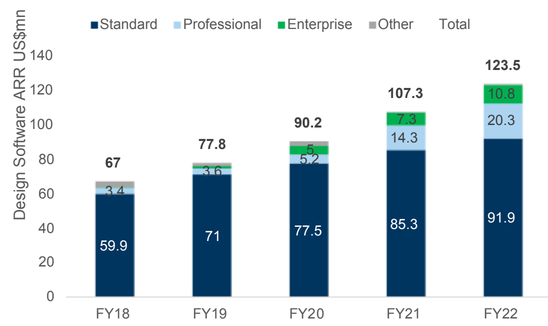
ALU Boards & Systems Net Adds (k)



Source: Company data, Goldman Sachs Global Investment Research

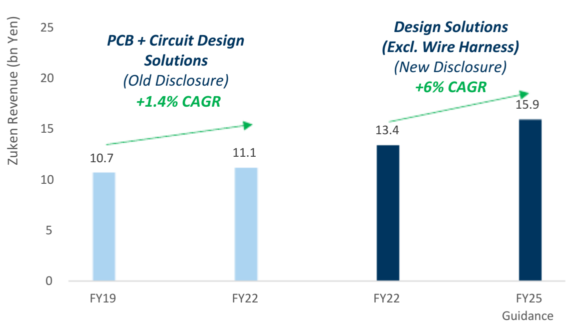
Exhibit 36: Driving stronger ARR performance in Pro/Enterprise for Altium

ALU ARR by Design Software Product US$mn



Source: Company data

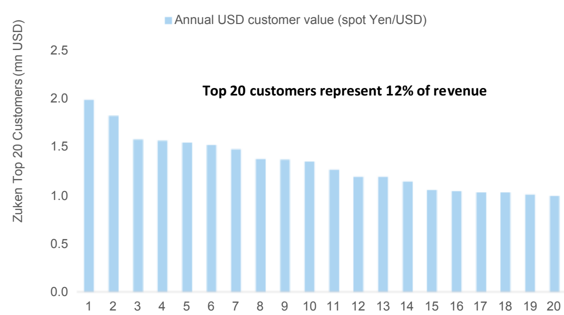
Exhibit 37: Zuken sees PCB revenues accelerating to +6% growth across its medium term targets



Source: Company data

Exhibit 38: Zuken's top 20 customers represent c.12% of FY22 revenues, with an annual spend of 1-2mn USD$ p.a.

Top 20 Zuken Customers (mn Yen/mn USD)



Source: Company data

Exhibit 39: Altium pro comes with additional MCAD integration, Library and SC management, teamwork and support features, with enterprise also having incremental PLM integration

Summary of additional Pro/Enterprise features not in Standard

	Pro	Enterprise
Altium Designer		
Product Design		
Multiboard Schematic + Assembly	X	X
Multiboard Mechanical Integration	Coming	Coming
Harness Design	Coming	Coming
Platform Services		
Multiple workspaces		X
Design Review + Sharing		
Context-Aware Tasks	X	X
MCAD Integration		
Sync Output Areas	X	X
Advanced Copper Geometry	X	X
Rigid-flex Synchronization	X	X
MCAD Component Placement	X	X
Enclosure Exchange	X	X
Advanced History	X	X
Integrates with:		
Siemens NX		X

	Pro	Enterprise
PLM Integration		
Bi-directional Component sync		X
Release & Publish to PLM		X
Project Creation linked to PLM		X
Integrates with:		
Arena PLM		X
PTC Windchill		X
Aras PLM		X
Oracle Agile PLM		X
Teamcenter		X
Design Data Storage		
Configurable Lifecylcle Management	X	X
Centralised Libraries and Supply Chain		
Managed components	X	X
Component data link	X	X
IHS Markit Component Intelligence	X	X
Library Health Dashboard	X	X

	Pro	Enterprise
Teamwork		
Role and Group Mgmt.	X	X
SSO	X	X
Change Conflict Prevention	X	X
Operation Permissions	X	X
Team Configuration		X
Workflow and Processes		
Part Request		X
Managed Design Review, Creation, Release + Approval		X
Support Services		
On-boarding to 365		
Check-ins	X	XX
Ticket Escalation	X	X
Priority Access		X
On-demand training		X

Source: Company data

In the table below, we highlight the drivers of our ARPU and subscriber forecasts for ALU, breaking down the ARPU growth across mix shift, Enterprise, and underlying pricing/Pro upsell. We also outline our mass market vs. Enterprise subscriber forecasts which drive our US$395mn FY26E revenue forecasts.

Exhibit 40: Overall we forecast the largest ARPU drivers being: (1) TBL Mix shift (+$562 into FY26); (2) Pricing Tailwinds (+$253); (3) Enterprise upsell (+$253); and (4) 365 monetisation (+$238)

Scenario Analysis - Altium ARPU drivers

Term Based License (TBL)			**Perpetual License (one-off + sub)**			
			One-off cost	9,775		
Standard	4,235		Standard	2,095		
Pro	5,325		Pro	3,150		
Enterprise	6,650		Enterprise	4,995		

Mix shift from Perpetual to Term Based Licenses (assumes all Standard)

FY22 Subscribers	**#**	%	**FY26E Subscribers**	**#**	**%**	
TBL	6,370	*11%*	TBL	28,370	*39%*	*c.50% cumulative sales are TBL*
Perpetual	50,542	*89%*	Maintenance	43,542	*61%*	
Total	**56,912**		**Total**	**71,912**		*Excludes Enterprise growth*
Implied at Standard pricing	2335		Mix Implied ARPU	2939		
ARPU (reported)	2170		Post c.7% discount	2732		
Discount to implied.	-7%		**ARPU Growth (TBL).**	**562**		

Enterprise Opportunity - $75mn target at US$6,650 TBL price less 10% disc.

Sub Growth	**Revenue**	**Subs (implied)**
FY22	14	2,289
FY26E	50	8,354
Sub growth to hit $75mn		6,065
ARPU Delta vs. FY22 estimates		**367**
ARPU Delta vs. FY26 ex-Enterprise		**253**

Altium 365 - $50mn target

ARPU per paying Sub	1188	$99/Month for premium service
Subscribers	15595	20% FY26 Base
Revenue Opportunity	18.5	
ARPU Increase (vs. FY22)	**238**	

Pricing Tailwinds - Assume CPI passed through, alongside Pro upsell

Price / CPI increase p.a.	2.8%	*Reflects inflation and further price rises, or upselling mass market to Professional suite (+25% premium)*
ARPU Increase (vs. FY22)	**253**	

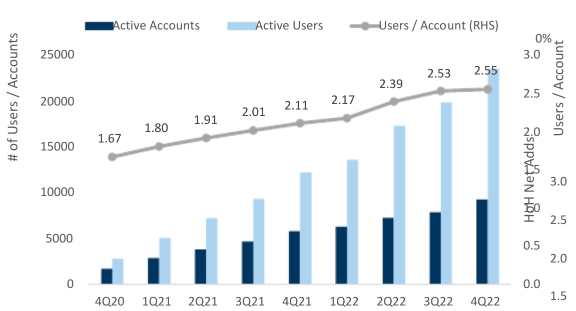
Source: Company data, Goldman Sachs Global Investment Research

Driver #2 - Altium 365 a US$50mn standalone opportunity?

An increasing focus for Altium is its 365 cloud based platform, which we believe materially improves the value proposition, by: (1) utilizing the efficiency & collaboration benefits of cloud to help design & manufacture PCBs; and (2) improving the linkages between PCB design & manufacturing (including sourcing components) alongside the other steps of a devices' product lifecycle; while (3) providing cloud hosted data management (positive for customers who no longer have to manage on premise storage). Although this might sound simple and easy to replicate, we note there are meaningful difficulties/differences within the electronics design industry that prevent straightforward linkages.

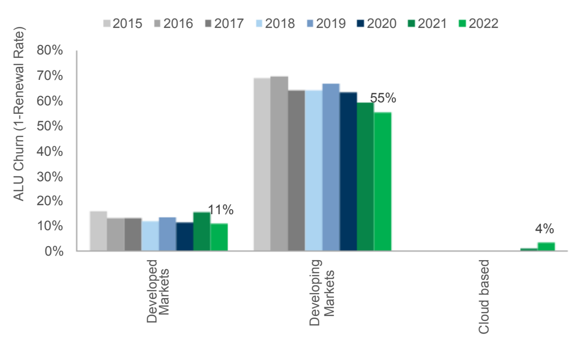
This is particularly significant for electronics designing, given the coordination problem that is faced within electronic R&D. Altium is focused on fixing this problem by allowing teams of users to collaborate more effectively in one centralized location and work on a project collaborative (i.e. communication, version control & comments all in one spot). Through the digital linkages that Altium is building, these benefits also extend to its connectivity with manufacturers of circuit boards, and other design software providers (mechanical, simulation etc) whereby data can easily and accurately be transferred between various teams and connectivity with Octopart allows for real-time information on component pricing and availability during the design phase. Collectively the benefits of 365 were attributed by Breville, a leading appliance manufacturer, to drive at least a 4X improvement in their efficiency and speed to market.

Exhibit 41: ALU continues to build its monthly active users/accounts, while also growing the ecosystem (evidenced by user/account ratio)
365 Users/Accounts



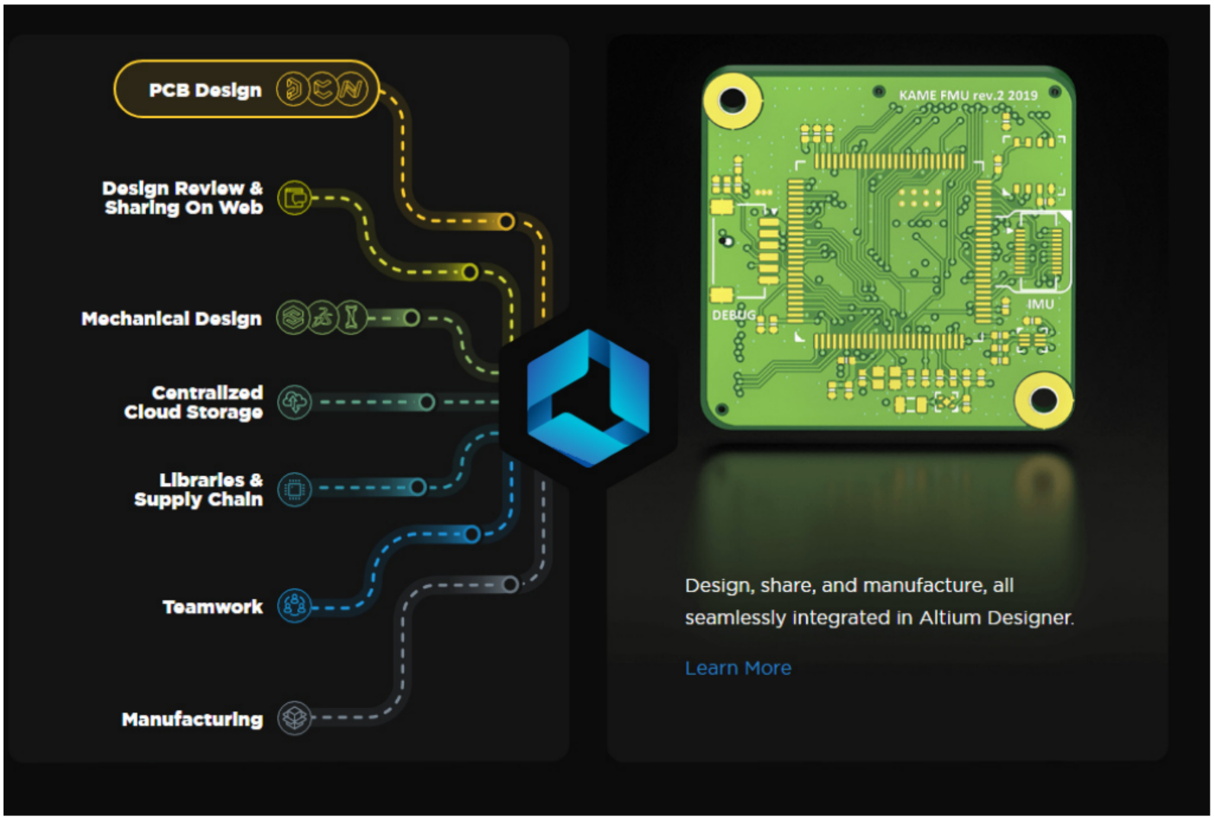
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 42: Cloud based Altium designer has significantly lower churn vs. desktop
ALU Churn rate (1- Renewal Rate)



Source: Company data

Exhibit 43: Altium 365 is the electronics product desing platform that unites PCB design, MCAD, data management, and teamwork

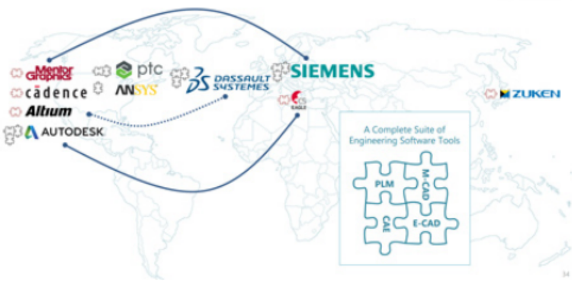


Source: Company data

We believe that the collaborative & process management benefits of 365 are a critical piece that is required for Altium to be successful within the Enterprise market, noting that when large teams are working on designing one PCB, collaboration, version control & commentary are critical drivers of efficiency. We also note that the launch of 365 does close the gap vs. Enterprise focused PCB competitors to Altium who have historically had better process management systems for their enterprise customers, have utilised similar strategies, including (1) PADs (MentorGraphics) supporting cloud functionality through partquest portal (catalog of parts and ECAD library), cloud based circuit simulation, global collaboration (for PADs professional subscribers) and connecting to manufacturers through PCBflow; (2) Cadence providing a parts library (Ultra Librarian) and browser based functionality; and (3) Zuken supporting a cloud-based library (Component Cloud) and online collaboration (Cloud Collaborator). We also note that these players are of substantial scale vs. ALU (on a revenue basis).

Exhibit 44: Other electronic design peers have certain vertical specialisations

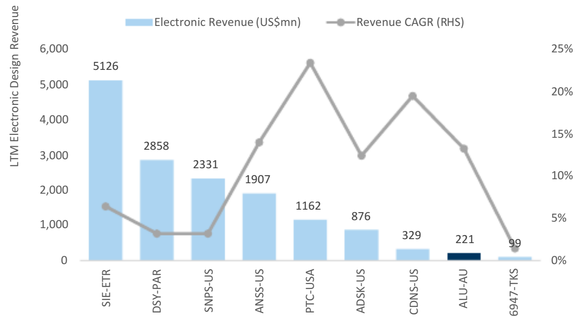
Key Electronic Design Functionality



Source: Company data

Exhibit 45: ALU is a high quality, but relatively niche player in the broader EDA market

LTM Electronic Design Revenues US$mn, FY0-3E Consensus Revenue growth RHS

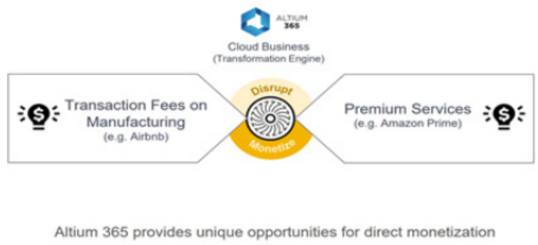


Source: Company data, Goldman Sachs Global Investment Research

Altium 365 software is currently bundled for free within an Altium Designer subscription (both perpetual & TBL) as the company is focused on building out the 365 ecosystem as extensively as possible across both primary (Designers & Engineers) and secondary users (manufacturers & others). Altium is hopeful that eventually the platform will be able to connect its customers with non-Altium software in time. Although cognisant of not disrupting its strong ecosystem growth, we expect over the next few years Altium will commence monetizing 365, given that it is targeting US$50mnn by FY26 target. The company has not provided details on how it plans to achieve this target, but has suggested either a premium subscription model, or potentially through a more transaction based mechanism (i.e. connection fees to other software). We consider these below:

- **Driving subscriber and ARPU growth**: Given the clear benefits and rationale for subscribers to use the A365 product, which is reflective in the meaningfully lower churn of existing users, we believe the clearest earnings' opportunity is for Altium to leverage its 365 to make meaningful inroads into the Enterprise market - and potentially bundling this platform for free (with less discounting), alongside charging a separate subscription fee for users within the low-mid end of the market.
- **Transaction based Fee**: Given that it is still early days in A365 evolution, and that PCB software is a critically important but somewhat niche step in the broader PLM, we believe the financial benefits of introducing a fee for other software providers that wouldn't dissuade them from using the platform wouldn't justify the added complexity of this charge - particularly as Altium remains focused on growing the ecosystem. Our analysis of outgoing traffic from ALU 365 (as per Exhibit 47) illustrates that there is limited linkage with adjacent electronic design software to date (acknowledging that exporting files may not be captured in this dataset). However over time, if ALU was to be successful and become a meaningful lead-generation platform for other software platforms, we believe a modest referral fee could be justified - most likely as a flat fee albeit a % is also possible (we estimate 5% charge).

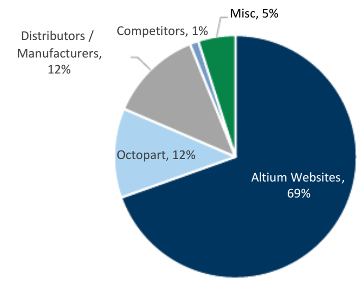
Exhibit 46: Mgmt. sees two potential avenues for monetising Altium 365



Source: Company data

Exhibit 47: The majority of Altium 365's outgoing traffic goes to ALU websites, Octopart or other industry particpants, with limited overlap with other software verticals

Altium 365 last 12m outgoing traffic share



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 48: We expect Altium ot use 365 to generate incremental revenue in a variety of manners

Altium 365 Monetisation Scenario - How to generate US$50mn p.a. in revenues		
1. Supporting Enterprise Growth (direclty 365 attributable)		
Revenue Potential per additional 1k Ent. subs	6.7	*US$6.6k p.a. pricing*
Revenue Potential per 5% reduction in avg. Ent. discount	3.7	
2. Subscription fee for mass-market		
Mass market subs	69,058	GS FY26 Estimates
Penetration	10%	
A365 price/m	A$99/m	vs. FY22 AWS spend. of c.US$40.
Revenue Potential per 10% attachment	**8**	
3. Transaction fee for alternative software/manufacturing leads		
Alternative software TAM		*US$6bn TAM*
Charge per connection fee		*5% year 1 license*
Share of connections through Altium		*1/100 transactions, 365 app agnostic*
Revenue Potential per 1% penetration	**3**	*US$6mn p.a.*
How to generate $50mn in incremental revenues?		
2,000 extra Enterprise subs, 5% reduction in discount	17	
25% 365 penetration at US$99/m	27	
1/50 transactions through 365	6	
Total	**50**	

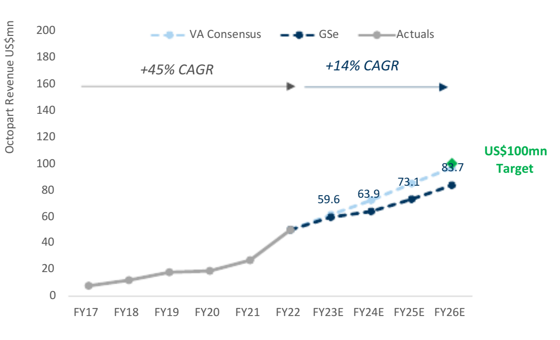
Source: Company data, Goldman Sachs Global Investment Research

Driver #3 - Growing Octopart towards US$100mn

Octopart, the #1 electronic components' marketplace in terms of current traffic & inventory has delivered stellar performance over the last 18 months, more than doubling its revenue through both volume and yield growth. We believe Octopart is a unique asset within the electronics industry, and is highly complementary to Altiums PCB design software and 365 offering. Leveraging our understanding of classifieds/marketplace (refer here), we have a broadly positive view on Octopart and its earnings potential, given the outsized revenue (yield) potential for #1 marketplace once they hit a position of dominance, given they are then typically extremely hard to disrupt given the virtuous circle of audience and inventory. **Octopart does have a large addressable market** given it is a high ROI channel to market for an industry that sells US$600-800bn in goods p.a. noting (reseller generate a margin of 12%, with 1-2% of revenue spent on marketing), with the #2 distributor WPG Holdings spending >US$300mn p.a. on sales and marketing. However, its customer base is relatively concentrated, with its top 5 sellers representing 54% of industry revenue and c.31% of Octopart inventory. This positive view is supported by our channel checks with industry participants around the value of Octopart, a positive sign in our view.

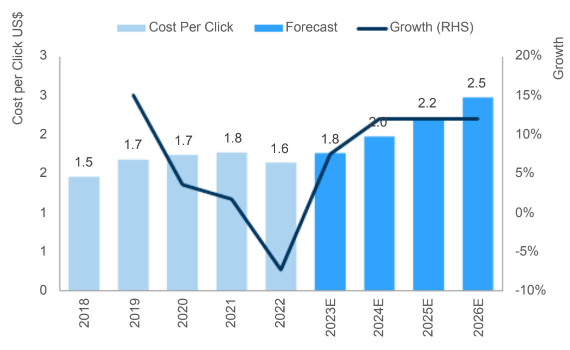
The structural opportunity for Octopart to continue growing its share of distributor marketing spend remains, as Octopart continues to grow its audience and share of leads of the electronic parts search market, both in respect to new distributors/manufacturers and their lead share of customers (vs. other channels). However, we believe the biggest opportunity for Octopart is to increase the share of inventory distributors have on its platform, noting that despite having 17/20 top US distributors, who represent over 98% of Top 20 industry revenue, its quantum of inventory across each customer differs significantly. We believe as distributors continue to focus on on-line ecommerce strategies we expect this will support Octopart linkage and inventory accuracy, noting Farnell (Octopart customer), has grown their digital share from 51% in 4Q21 to 56% in 4Q22.

Exhibit 49: We sit below consensus on Octopart revenues given we are more cautious on medium term volumes
Octopart Revenue vs. Consensus and Target



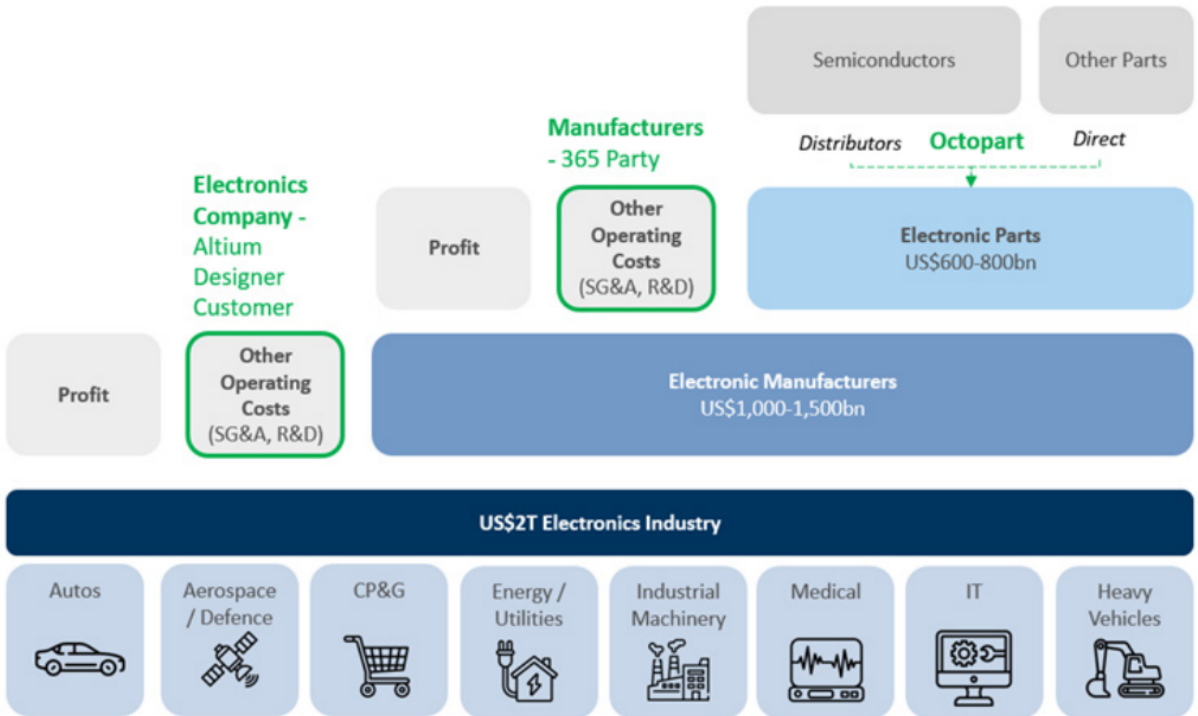
Source: Company data, Goldman Sachs Global Investment Research, Visible Alpha Consensus Data

Exhibit 50: We forecast CPC to improve into FY23 given limits impacted FY22 yield, with pricing growth thereafter given market position
Octopart Cost Per Click US$



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 51: Framing the electronic industry and Octopart opportunity

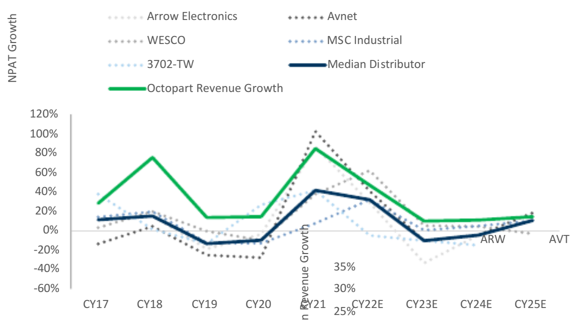


Source: Company data

However, clearly Octopart has benefited from the global shortages in electronic parts, given Octopart is a strong platform to determine part availability and potential substitutes - we highlight Exhibit 52, where Octopart revenue growth is highly correlated with distributor NPAT growth (given sales is distorted by periods of high part pricing) - with VA consensus expectations forecasting a meaningful slowing in NPAT growth across CY23-24.

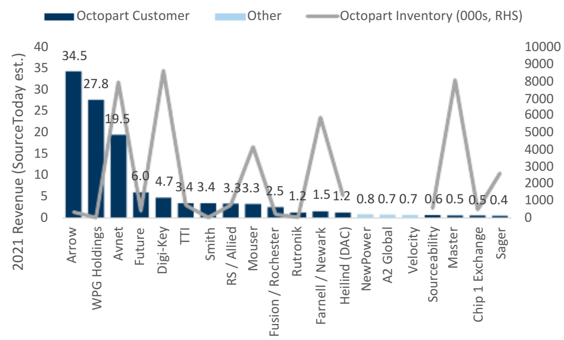
We note these positive trends are likely to continue in the near term (Altium are forecasting +20-30% Cloud platform revenue growth in FY23E), however we do see headwinds on the horizon as the global supply chain starts to (eventually) normalize. When this occurs, the question will be whether the strong audience growth has been enough to shift user mindset away from legacy advertising medians onto digital substitutes like Octopart, to continue growing share. The company will also need to show that it can offset these traffic headwinds with improved yield (including the recent renegotiating of seller contracts that were hitting revenue caps), alongside building out its data-based products for both vendors & consumers, which will allow the company to diversify revenue streams and sustain its earnings growth. We believe such an offering for designers would be particularly valuable within the Altium 365 platforms, which would allow designers to optimize for part availability & pricing.

Exhibit 52: Octopart revenue growth is highly correlated with distributor profit growth
Electronic Distributors NPAT Growth (CY, LC)



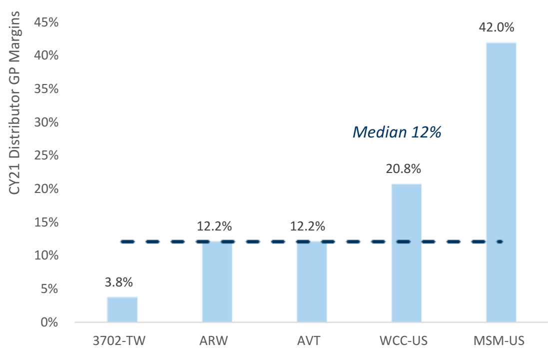
Source: Visible Alpha Consensus Data

Exhibit 53: Out of the top global distributors, Octopart has a relationship with 17/20 or c. 98% of revenue
Top 2021 Distributors by Revenue (US$mn)



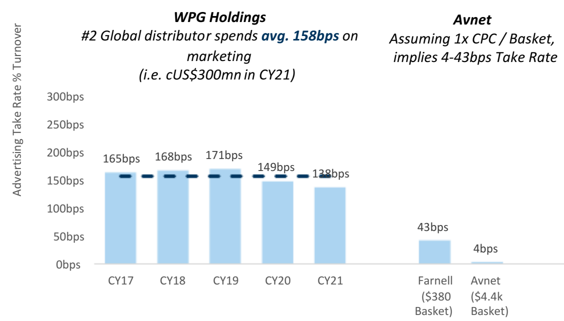
Source: SourceToday, Company data

Exhibit 54: Current distributors generate c.12% GP margins on electronic components
Listed Electronic Component Distributors, CY21 GP Margins



Source: Company data

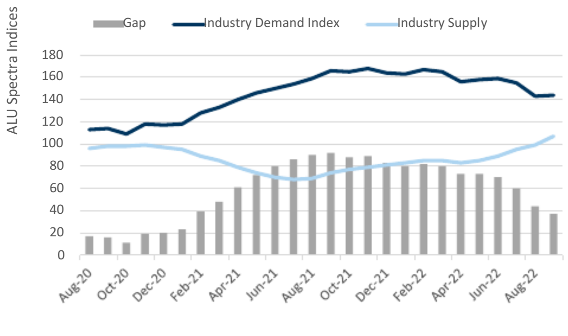
Exhibit 55: We believe there are strong metrics which frame the Octopart TAM opportunity
Distributor Advertising Take Rate % Turnover



Source: Company data, Goldman Sachs Global Investment Research

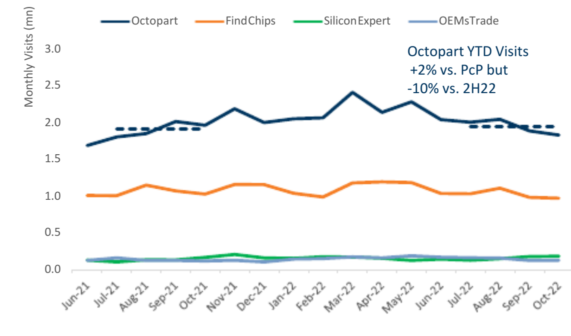
We note recent high frequency data for Octopart is somewhat concerning, with FY23-to-date similarweb data suggesting +2% yoy traffic growth, but declining vs. 2H22 & on a monthly basis. This is consistent with data from Altium's Spectra indices which show a still elevated level of demand but sequential declines. Given that Altium's 20-30% revenue growth guidance assumed growth in both traffic & yield for FY23E, our forecast sit at the lower end of the range - forecast flat FY23 traffic & yield growth of +19%.

Exhibit 56: According to ALU's Spectra indices, market demand still remains elevated
ALU Spectra Indices (Supply / Demand)



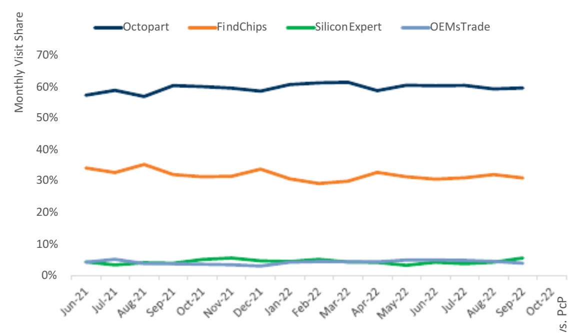
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 57: Octopart continued to grow visits in recent months
Monthly Visits (mn)



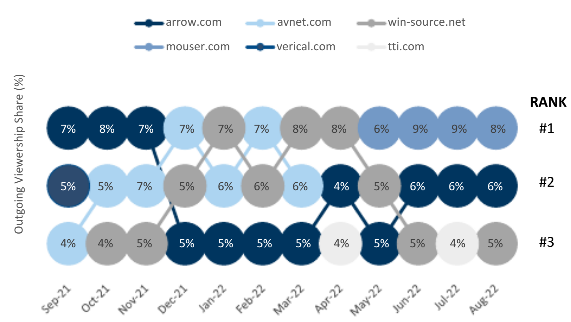
Source: SimilarWeb

Exhibit 58: Octopart continues to hold >50% share vs. other search engines
Monthly Visit Share



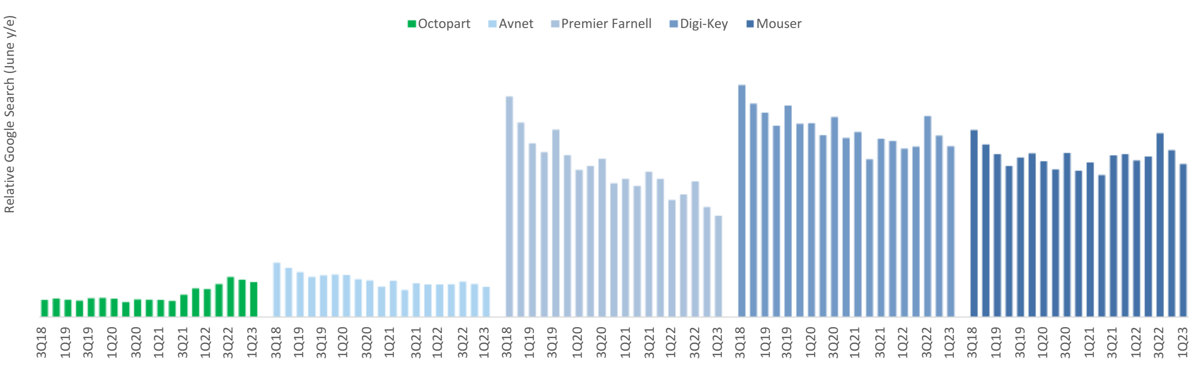
Source: SimilarWeb

Exhibit 59: Large distributors, like Arrow, Avnet, TTI (incl. Mouser) continue to remain Octopart's largest customers, with the top 3 website representing 15-20% of traffic
Share of outgoing traffic from Octopart (proxy for customers)



Source: SimilarWeb, Goldman Sachs Global Investment Research

Exhibit 60: Octopart's google search growth has outstripped key distributors/customers
Relative Google Search Trends

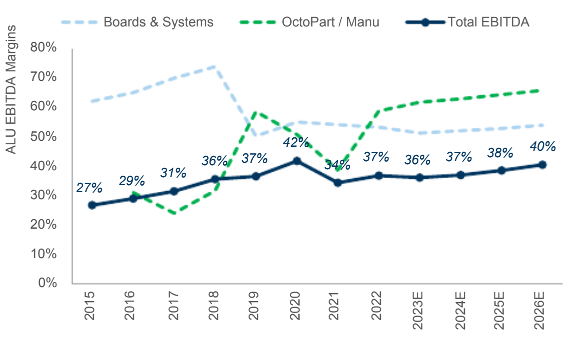


Source: Google Trends (https://www.google.com/trends)

Solid existing margins, some room for expansion

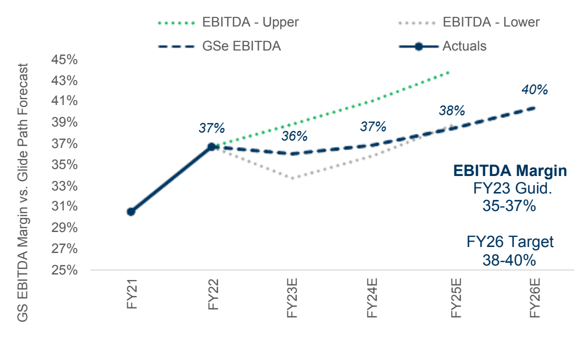
Altium's margin profile has remained relatively steady since FY18 (37% in FY22, vs. 35% FY18), given the impacts of the shift to subscription, Covid headwinds and reinvestment in key priorities offset by solid revenue growth. Surprisingly the FY23 guidance does imply declining margins at the mid-point (35-37% guidance, vs. 37% FY22), attributed to ongoing 365 investment, staff cost inflation and higher compliance and regulation opex. However, the FY26 targets of 38-40%, although below the prior flight path guidance of 39-44%, do still imply c.200bps of margin expansion at the mid-point (GSe +360bps to 40% in FY26), which reflects the accelerating revenue growth and monetisation of early Enterprise/365 investment, partly offset by lower Octopart revenues (23% revenue in FY22 vs. 20% target).

Exhibit 61: We forecast EBITDA margins to remain flat, to growing slightly given the top-line growth
Segment EBITDA margins (B&S / Octopart) vs. Group EBITDA Margin



Source: Company data, Goldman Sachs Global Investment Research

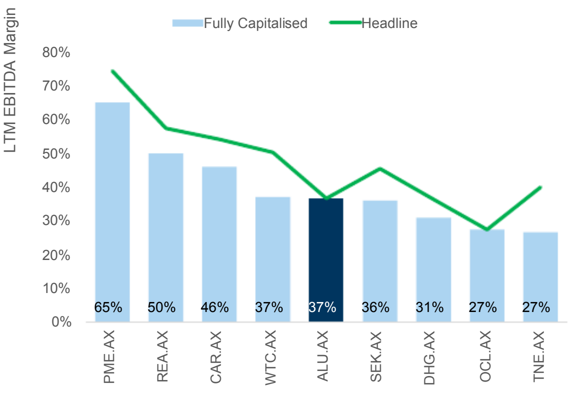
Exhibit 62: We sit below the previously disclosed 'glide path' from FY24, and sit within updated FY26 targets
ALU EBITDA Margin Guidance / Targets vs. GSe - US$mn



Source: Company data, Goldman Sachs Global Investment Research

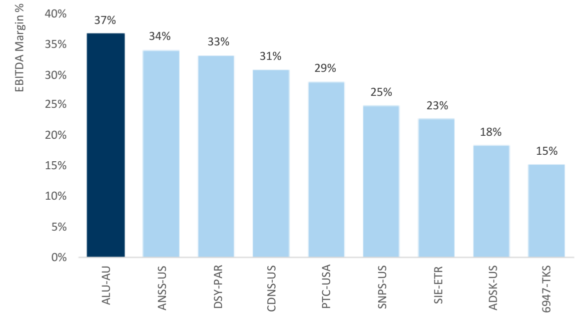
Overall, we note that ALU screens solid **on a fully capitalised EBITDA margin basis against ANZ Technology peers** (mid pack), **best in class for its PCB business against other electronic design competitors** and **very high for Octopart against mature global classifieds** (top quartile).

Exhibit 63: Altium margin profile screens towards the middle of domestic profitable technology peers, when adjusting for capitalised R&D
LTM EBITDA Margin (Excl. Capitalised R&D)



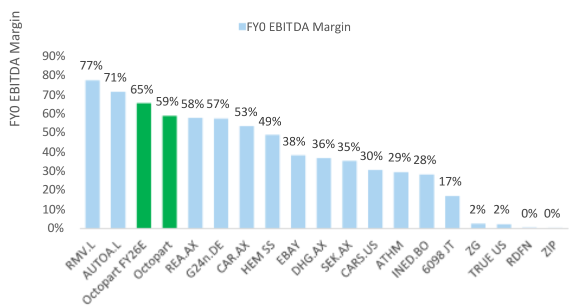
Source: Company data

Exhibit 64: ALU has the largest EBITDA margin of electronic design peers
LTM EBITDA Margin



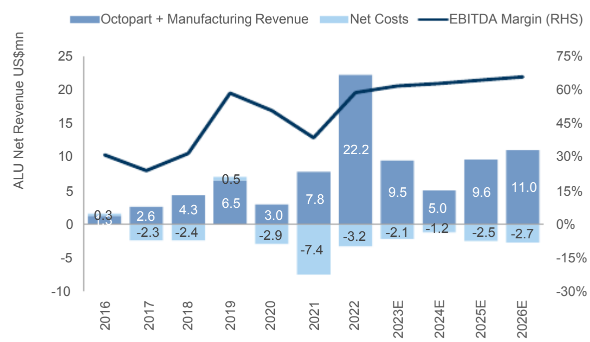
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 65: Octopart margins screen toward the top-end of peers
FY0 EBITDA margins vs. peers



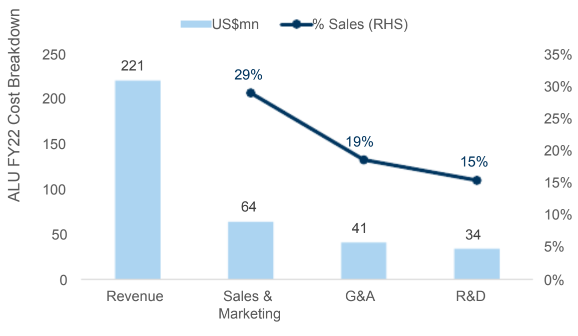
Source: Company data, Goldman Sachs Global Investment Research, FactSet

Exhibit 66: With Octopart EBITDA margins growing YoY, with solid top-line growth and limited opex increasing
Octopart Net Revenue/Cost vs. PcP



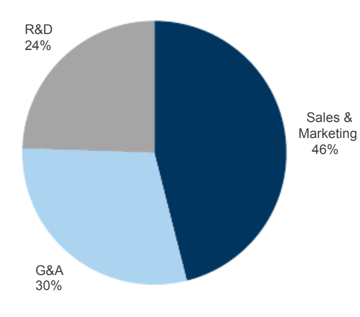
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 67: Sales and marketing represents 29% of revenues, with R&D at 15%
Opex FY22 US$ spend, % Revenue RHS



Source: Company data

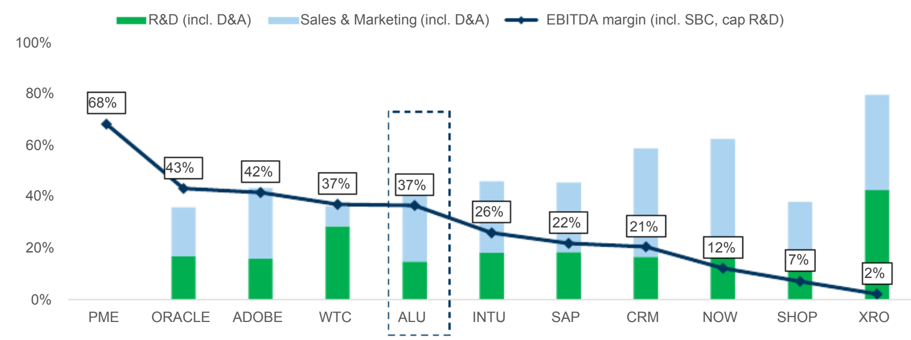
Exhibit 68: Sales and marketing is the largest cost line, followed by G&A
% of FY22 Costs



Source: Company data

Hence looking forward, we expect minor margin expansion for Altium, and therefore forecast 40% FY26 margins, growing to c.42% terminal margins, in-line with scaled US SaaS peers (Oracle, Adobe). We believe ALU will need to continue to invest in R&D (given 365 investment opportunities) and in sales & marketing (to facilitate Altium designer enterprise growth, and continued penetration of the c.250k global seats).

Exhibit 69: ALU tracks towards the upper end of margins vs. local large cap tech, and global enterprise peers
Key peers, LTM EBITDA margin (incl. SBC, capitalised R&D spend)



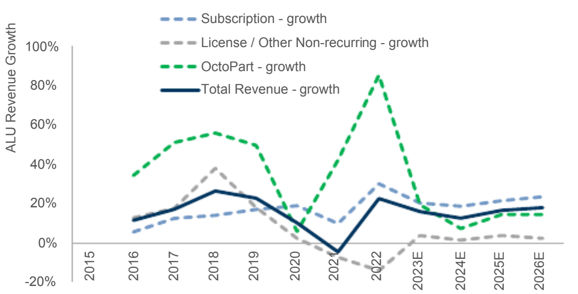
Source: Company data, Goldman Sachs Global Investment Research

Key assumptions driving our forecasts

Revenue Expectations (+16% FY22-26E CAGR)

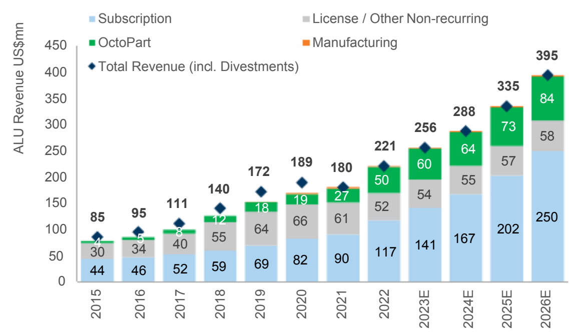
We believe Altium's solid revenue growth (+12% FY18-22 CAGR) can accelerate into FY26 (GSe +16% FY22-26E) given: (1) Improving subscription revenues, supported by both net adds and ARPU growth (pricing, pro/enterprise upsell, TBL mix); (2) moderating license headwinds; and (3) sustained Octopart growth despite near-term volume normalisation.

Exhibit 70: While Octopart has seen solid growth into FY22, we see B&S subscription being the primary driver going forward
Segment Revenue Growth



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 71: We forecast FY26 revenue of US$395mn implying a 16% FY22-26E CAGR
ALU Revenue Breakdown

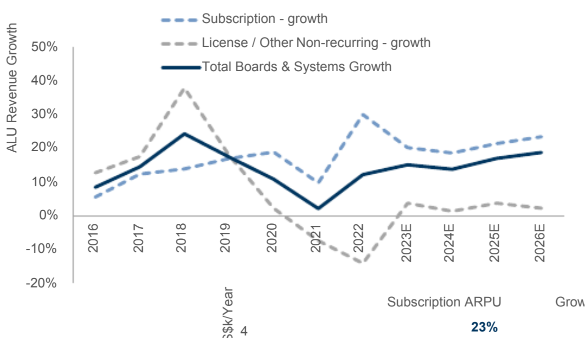


Source: Company data, Goldman Sachs Global Investment Research

Boards & Systems (+16% FY22-26E CAGR)

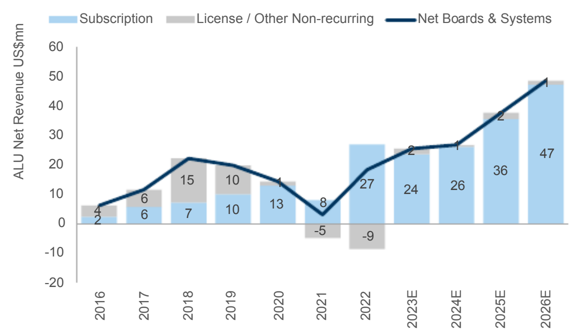
A key component of this growth is an acceleration in top-line boards and systems growth, which is expected to improve into FY26 given: (1) normalising non-recurring headwinds, with lower perpetual license sales offset by higher pricing (license revenues growing into FY23+): (2) Enterprise execution, particularly in FY24+, which is ARPU accretive, and represents an incremental subscriber opportunity; (3) Core Altium Designer ARPU growth with headline pricing increases, positive mix shift from Term-based licenses, Pro subscription upsell and 365 monetisation.

Exhibit 72: We see improving B&S top-line growth given License headwinds are moderating
B&S Revenue Growth



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 73: With net revenue growth improving towards FY26
B&S Net Revenue vs. PcP

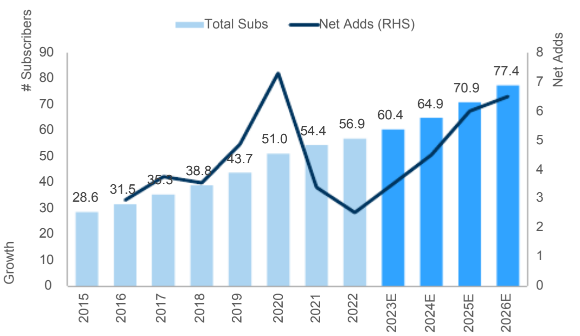


Source: Company data, Goldman Sachs Global Investment Research

Subscription (+21% FY22-26E CAGR, 53% of FY22 Revenues)

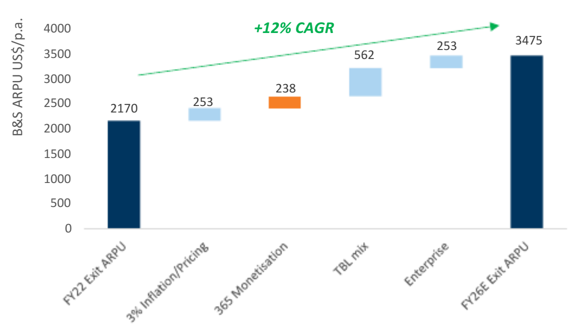
We see an improving trajectory for the subscription business into FY26, supported by accelerating Net adds and continued ARPU growth. **In respect to net adds**, while FY22 momentum was limited, we believe growth will continue to accelerate given: (1) Declining churn over time (supported by 365 adoption, which to date has shown an lower churn vs. group); (2) Higher marketing spend driving an increase YoY in gross adds (while remaining relatively steady as a % sales); (3) Improving conditions in China post 1H23 (noting lockdown overhangs); and (4) timing of enterprise traction which will be more heavily skewed towards FY24+ given the longer sales cycle. **While for ARPU,** we believe the largest drivers of the +12% p.a. FY22-26E CAGR will be: (1) Mix shift to TBL, which are at a much higher subscription price (>US$4k) than the maintenance subscription on perpetual license (c.US$2k); (2) Continued pricing increases given the inflationary environment, noting underlying subscriptions increased by +5% in FY23; (3) Upsell from Pro/Enterprise subscriptions, given they are growing as a % of the subscriber base; and (4) Early Altium 365 monetisation.

Exhibit 74: Despite subscriber net adds slowing into FY21/22, we see improving momentum from here
ALU B&S Subscribers, Net Adds (RHS)



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 75: We believe ALU can deliver >10% ARPU growth given pricing, mix and upsell
B&S ARPU US$/p.a.

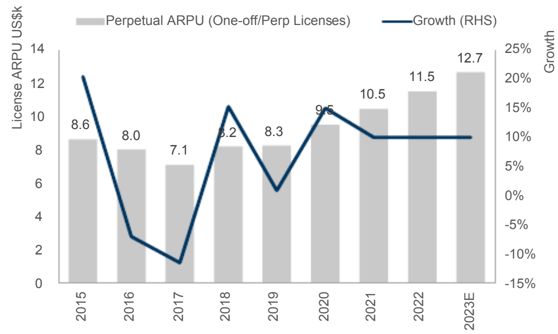


Source: Company data, Goldman Sachs Global Investment Research

License (+3% FY22-26E CAGR, 24% FY22 Revenues)

As ALU has shifted more sales focus towards its subscription based Altium designer products, it has seen near-term revenue impacts, since perpetual licenses come with upfront, high margin payments. Going forward, we still expect these to represent a considerable portion of the base (given some geographies preference for perpetual licenses), however believe over time they will decrease as a % of new sales. Furthermore, to: (1) offset this decline in licenses; and (2) to encourage new customers to move towards stronger unit economic subscription based products, we see license product pricing to continue to increase (we forecast >10% p.a.).

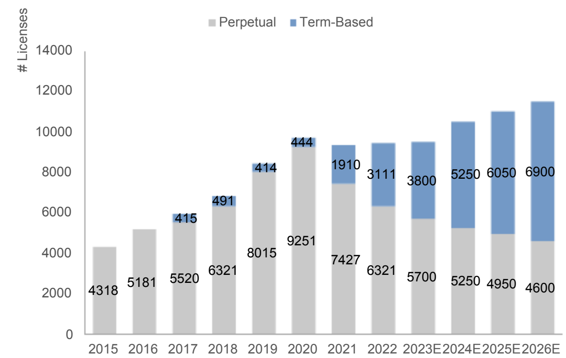
Exhibit 76: We see ALU increasing prices on perpetual licenses



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 77: We see growing share of term-based licenses cannibalising annual perpetual sales

Licenses sold p.a.

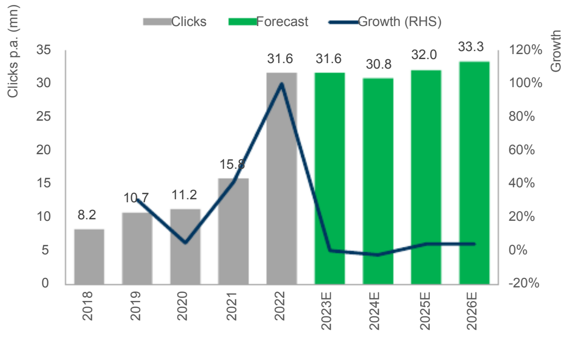


Source: Company data, Goldman Sachs Global Investment Research

Octopart & Manufacturing (+14% FY22-26E CAGR, 23% FY22 Revenues)

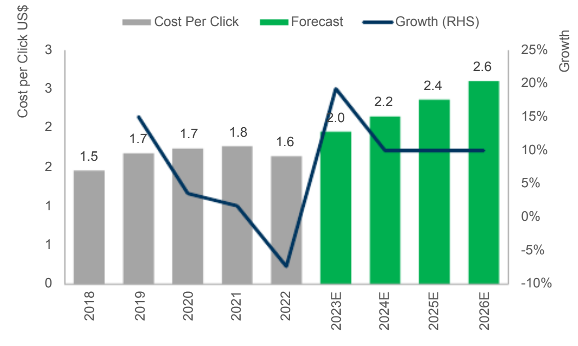
While Octopart was the standout performer in FY22 (+85% Revenue growth), we are relatively more cautious on its near term performance, believing its recent growth has been supported by tailwinds from: (1) Rising supply chain complexity, creating elevated interest in its parts inventory; and (2) Elevated electronic parts demand, given high consumer spending towards discretionary products; and hence expect more modest top-line growth going forward. This is reflected in our relatively subdued volume forecast of +0%/-3%/+5% in FY23/24/25, consistent with consensus expectations of global distributors, which are key Octopart customers. Nevertheless, we believe pricing and yield will become a greater focus, as: (1) FY22 yields were depressed given customers met their revenue caps given the strength of the demand; and (2) Octopart pulls the pricing lever more aggressively into FY23+ given their audience lead and relatively strong competitive position; and (3) As Octopart and Altium Enterprise (NEXAR) drive greater adoption, and uptake of adjacent services (i.e. data feeds).

Exhibit 78: We see Octopart volumes remaining flat in FY23 (+ve/-ve 1H/2H), given softening demand and supply chain constraints
Octopart Clicks (mn p.a.)



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 79: With pricing growing into FY23, given FY22 yield was subdued due to revenue caps, with greater yield monetisation thereafter
ALU Cost per Click, US$

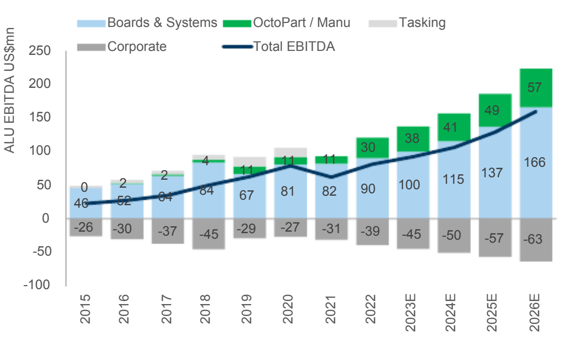


Source: Company data, Goldman Sachs Global Investment Research

Segment Profitability

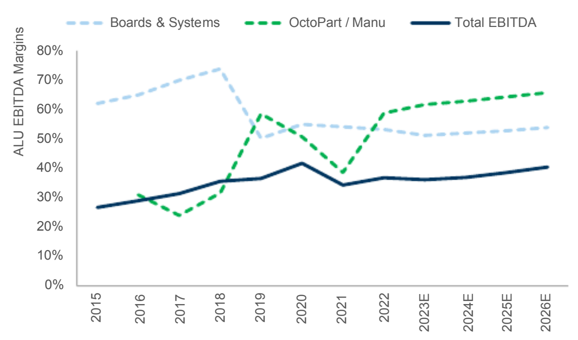
Given this solid top-line growth, we expect both total EBITDA and EBITDA margins to improve going forward. However, we do model some investment into FY23 (consistent with company guidance of 35-37% FY23 EBITDA margins) vs. 37% in FY22, with expansion thereafter (GSe FY26E EBITDA Margin of 40.4%). A large amount of the cost growth will come through the B&S segment, which we expect will deliver: (1) continued product improvements (365, Enterprise/Pro features etc.); and (2) a ramp in the enterprise sales channel, while we also expect (3) modest growth in the Octopart segment given it is a high margin business (comparable to domestic classifieds); and (4) modest operating leverage on group corporate costs.

Exhibit 80: We forecast +17% FY22-25E EBITDA CAGR
ALU EBITDA Breakdown by Segment US$mn



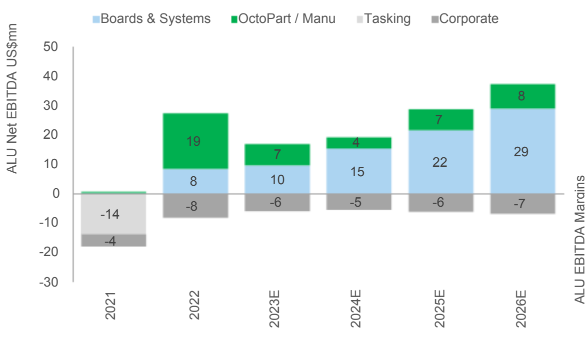
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 81: With both B&A and Octopart margins growing from FY23
ALU Segment EBITDA Margins



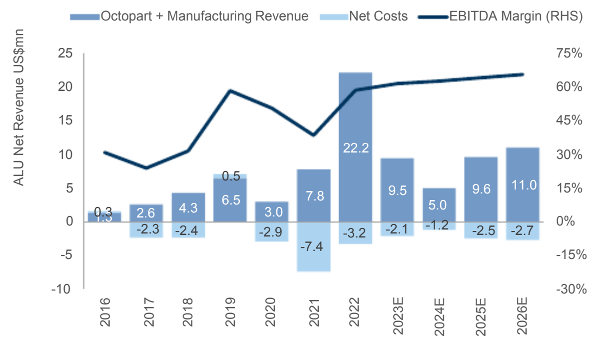
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 82: With Octopart driving a larger portion of EBITDA growth into FY23, with PCB increasing thereafter
Net EBITDA Delta US$mn (vs. pcp)



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 83: With Octopart EBITDA margins growing YoY, with solid top-line growth and limited opex growth
Octopart Net Revenue/Cost vs. PcP

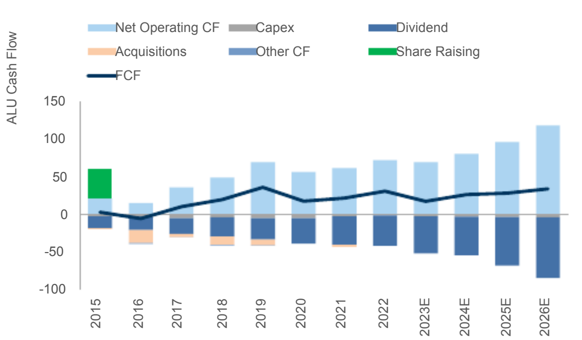


Source: Company data, Goldman Sachs Global Investment Research

Balance Sheet and Cash Flow

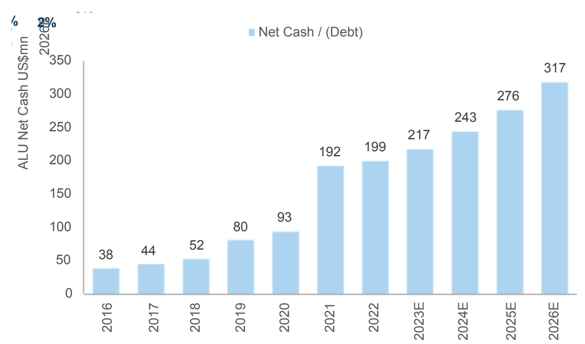
Given this earnings outlook, and ALU's limited capex investment (R&D expensed); we see ALU delivering solid FCF growth, which we believe could support: (1) growing dividends, and (2) Bolt-on M&A, consistent with the company's track record, and to take advantage of the considerable liquidity (US$199mn Net Cash at FY22).

Exhibit 84: We forecast strong operating cash flow growth to fund dividend improvement
ALU Cash Flow Breakdown US$mn



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 85: ...enabling continued growth in ALU's balance sheet
ALU Net Cash A$mn



Source: Company data, Goldman Sachs Global Investment Research

Consensus expectations

We forecast FY23 Revenue/EBITDA of US$256/$92mn, which is at the bottom end of recently reiterated (at the AGM) revenue guidance ($255-265mn), and at the middle end of EBITDA margin guidance (35-37%), while being -3%/-4% below consensus revenue/EBITDA. This is largely driven by lower B&S net adds (+3.5k vs. Cons. +4.6k) which we see as an appropriate ramp given the +2.5k achieved in FY22; marginally softer ARPU growth of +14% vs. consensus (noting Enterprise benefits will likely be longer dated); in addition to our cautious expectation for Octopart volumes (GSe +0%), consistent with softening SimilarWeb data, and earnings downgrades from distributors.

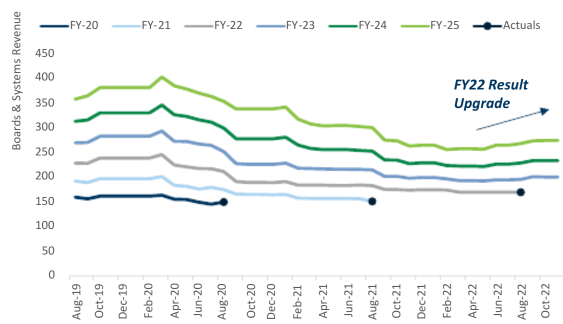
We also sit below company FY26 targets (GSe $395mn Revenue vs. $500mn target) and consensus FY26E expectations (Revenue/EBITDA -5%/-4% vs. Visible Alpha Consensus Data), largely driven by our concerns around the FY23/24 volume headwinds for Octopart, as Electronic part demand normalises, and supply improves (removing the incentive for a search website such as Octopart).

Exhibit 86: We sit below consensus expectations given our more cautious revenue outlook
ALU GSe vs. Consensus (US$mn)

	FY23E		FY26E	
	GSe.	vs. Cons	GSe.	vs. Cons
Boards And Systems	194.8	-3%	307.9	-2%
Octopart	59.6	-3%	83.7	-14%
Total Revenue	**255.8**	**-3%**	**394.6**	**-5%**
EBITDA	**92.3**	**-4%**	**159.5**	**-4%**
NPAT	**62.6**	**-7%**	**114.0**	**-7%**

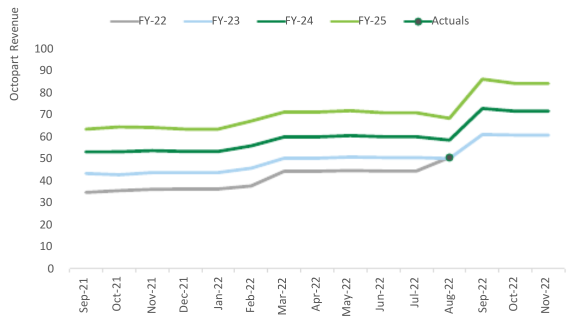
Source: Company data, Goldman Sachs Global Investment Research, Visible Alpha Consensus Data

Exhibit 87: Lower sub growth has driven B&S revenue downgrades, until the FY22 result
ALU B&S Revenue Forecast (June y/e)



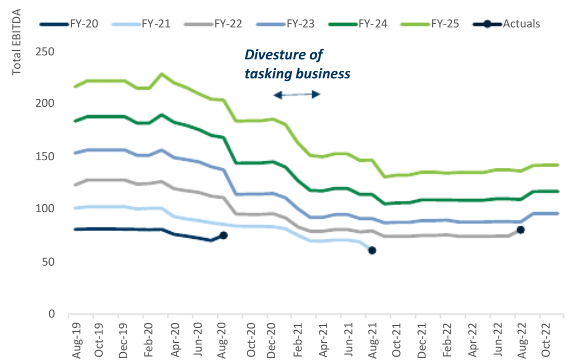
Source: Visible Alpha Consensus Data

Exhibit 88: Octopart revenues have been revised strongly upwards following elevated electronics demand
ALU Octopart Revenue Forecast (June y/e)



Source: Visible Alpha Consensus Data

Exhibit 89: With EBITDA revised up since Dec-21 post a difficult period during Covid leading to earnings downgrades
ALU EBITDA US$mn, consensus revisions



Source: Visible Alpha Consensus Data

Altium detailed financial forecasts to FY26E

Exhibit 90: Altium Key Income Statement Forecast

Altium Ltd. Financial Summary											Growth Rates							
Year end 30 June (US$mn)	FY19	FY20A	FY21A	FY22A	1H23E	2H23E	FY23E	FY24E	FY25E	FY26E	FY20A	FY21A	FY22A	1H23E	2H23E	FY23E	FY24E	FY2
Subscription	69.0	82.0	90.0	117.0	65.8	74.8	140.6	166.7	202.3	249.7	19%	10%	30%	18%	22%	20%	19%	21
License / Other Non-recurring	64.4	65.8	60.9	52.3	26.2	28.1	54.2	54.9	57.0	58.2	2%	-7%	-14%	11%	-2%	4%	1%	4
Boards and System	**133.4**	**147.8**	**150.9**	**169.3**	**91.9**	**102.9**	**194.8**	**221.6**	**259.3**	**307.9**	**11%**	**2%**	**12%**	**16%**	**14%**	**15%**	**14%**	**17**
OctoPart	17.9	19.0	27.0	50.0	28.4	31.2	59.6	63.9	73.1	83.7	6%	42%	85%	28%	12%	19%	7%	14
Manufacturing	0.6	2.5	2.4	1.6	0.9	0.5	1.4	2.1	2.5	3.0	328%	-7%	-34%	-10%	-10%	-10%	50%	20
Total NEXAR Revenue	**18.5**	**21.5**	**29.3**	**51.5**	**29.3**	**31.7**	**61.0**	**66.0**	**75.7**	**86.7**	**16%**	**36%**	**76%**	**27%**	**12%**	**18%**	**8%**	**15**
Total Revenue	**171.8**	**189.1**	**180.2**	**220.8**	**121.2**	**134.6**	**255.8**	**287.7**	**335.0**	**394.6**	**10%**	**-5%**	**23%**	**18%**	**14%**	**16%**	**12%**	**16**
Boards and System EBITDA	67.0	81.2	81.6	90.1	48.4	51.4	99.8	115.2	136.9	165.9	21%	0%	10%	13%	9%	11%	15%	19
NEXAR EBITDA	10.8	10.9	11.3	30.3	17.3	20.4	37.6	41.5	48.6	57.0	1%	4%	168%	41%	13%	24%	10%	17
Corporate Costs	-29.0	-27.0	-31.1	-39.2	-23.0	-22.1	-45.1	-50.5	-56.6	-63.3	-7%	15%	26%	13%	17%	15%	12%	12
Total EBITDA	**62.7**	**78.8**	**61.8**	**81.1**	**42.7**	**49.6**	**92.3**	**106.1**	**129.0**	**159.5**	**26%**	**-22%**	**31%**	**23%**	**7%**	**14%**	**15%**	**22**
Depreciation and amortisation	5.8	11.1	11.9	11.7	6.1	5.9	12.1	12.4	12.8	13.2	90%	7%	-2%	5%	1%	3%	3%	3
EBIT	**56.9**	**67.7**	**49.9**	**69.4**	**36.6**	**43.6**	**80.2**	**93.7**	**116.2**	**146.3**	**19%**	**-26%**	**39%**	**26%**	**8%**	**16%**	**17%**	**24**
Net interest expense	-0.7	-0.1	0.4	0.0	-0.3	-0.3	-0.5	-0.6	-0.6	-0.7	-85%	-466%	-97%	539%	-569%	-3815%	11%	12
Consolidated pre-tax profit	57.6	67.9	49.5	69.4	36.8	43.9	80.7	94.3	116.8	147.1	18%	-27%	40%	27%	9%	16%	17%	24
Income tax expense	4.8	34.7	12.9	12.8	7.4	10.8	18.2	21.2	26.3	33.1	628%	-63%	-1%	20%	61%	42%	17%	24
NET PROFIT (pre-abnormals)	**52.8**	**33.1**	**36.5**	**56.6**	**29.5**	**33.1**	**62.6**	**73.1**	**90.5**	**114.0**	**-37%**	**10%**	**55%**	**29%**	**-2%**	**11%**	**17%**	**24**
EPS (pre-abnormals) (¢ps)	40.3	25.3	27.8	42.9	22.3	25.1	47.4	55.4	68.6	86.3	-37%	10%	54%	28%	-2%	11%	17%	24
DPS (A¢ps)	34.0	39.0	40.0	47.0	26.9	29.9	56.7	64.2	76.1	89.6	15%	3%	18%	28%	15%	21%	13%	19
Margins	FY19	FY20A	FY21A	FY22A	1H23E	2H23E	FY23E	FY24E	FY25E	FY26E	FY20A	FY21A	FY22A	1H23E	2H23E	FY23E	FY24E	FY2
B&S Margin	50%	55%	54%	53%	53%	50%	51%	52%	53%	54%	475bps	-88bps	-86bps	-155bps	-242bps	-200bps	76bps	82
NEXAR Margin	58%	51%	39%	59%	59%	64%	62%	63%	64%	66%	-780bps	-1212bps	2016bps	619bps	55bps	292bps	115bps	149
EBITDA	**37%**	**42%**	**34%**	**37%**	**35%**	**37%**	**36%**	**37%**	**38%**	**40%**	518bps	-742bps	247bps	121bps	-226bps	-67bps	82bps	160
Operational Metrics	FY19	FY20A	FY21A	FY22A	1H23E	2H23E	FY23E	FY24E	FY25E	FY26E	FY20A	FY21A	FY22A	1H23E	2H23E	FY23E	FY24E	FY2
B&S																		
Subscribers	43698	51006	54394	56912	58412	60412	60412	64912	70912	77412	7308	3388	2518	1500	2000	3500	4500	60
ARPU	1672	1732	1708	2102	2300	2519	2397	2660	2979	3367	4%	-1%	23%	14%	16%	14%	11%	12
New Licenses	8015	9251	7427	6321	2790	2910	5700	5250	4950	4600	15%	-20%	-15%	-9%	-11%	-10%	-8%	-6
ARPU	8035	7113	8200	8272	9376	9645	9513	10465	11511	12662	-11%	15%	1%	22%	9%	15%	10%	10
Octopart																		
CPC ($, Yield)	$1.68	$1.74	$1.77	$1.64	$1.85	$1.92	$1.89	$2.07	$2.28	$2.51	4%	2%	-7%	nm	nm	15%	10%	10
Clicks (mn, Volume)	10.7	11.2	15.8	31.6	15.4	16.2	31.6	30.8	32.0	33.3	5%	41%	100%	8%	-6%	0%	-3%	4

Cash Flow Statement	FY19	FY20A	FY21A	FY22A	1H23E	2H23E	FY23E	FY24E	FY25E	FY26E
GOCF	**71.4**	**63.4**	**75.6**	**81.8**	**36.5**	**50.5**	**87.0**	**101.3**	**121.8**	**150.5**
Capex	-5.1	-5.1	-2.5	-1.5	-1.2	-1.3	-2.6	-2.9	-3.3	-3.9
Tax / Interest	-2.1	-6.9	-13.8	-9.3	-7.1	-10.5	-17.6	-20.6	-25.6	-32.4
FCF	**64.2**	**51.4**	**59.2**	**71.0**	**28.2**	**38.6**	**66.8**	**77.8**	**92.8**	**114.1**
FCF Margin % Sales	37%	27%	33%	32%	23%	29%	26%	27%	28%	29%
Acquisitions	-7.9	0.0	-3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends paid	-28.1	-33.6	-37.6	-40.1	-23.7	-25.5	-49.2	-51.3	-60.5	-72.3
Shares issued/(repurchased)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other inflows/(outflows)	-0.2	-5.0	80.3	-21.5	0.0	0.0	0.0	0.0	0.0	0.0
Change in Cash	**27.9**	**12.7**	**98.9**	**9.4**	**4.5**	**13.0**	**17.5**	**26.5**	**32.3**	**41.8**

Source: Company data, Goldman Sachs Global Investment Research

Valuation: A$42 Target Price implies 12% upside

We derive our A$42 12-month target price via a combination of a Fundamental EV/EBITDA SOTP Valuation (85% Weighting) and M&A Valuation (15% Weighting).

In respect to our fundamental valuation of A$40/share: we value ALU on 31x FY24E EV/EBITDA, which is in-line with its historical premium of +14% vs. Profitable Domestic Tech Peers (WTC, PME, TNE, REA, DHG, SEK, CAR). We believe this is suitable given: (1) ALU has FY22-25E EBITDA growth in-line with peer avg. (17% vs. peer avg. 17%); (2) Has a positive risk reward skew (of 3.3x; see Valuation scenario section below) given vertical leadership in PCB and Electronic parts search; with (3) this multiple is still below its 3yr. trading average (of 36x; i.e., a -12% discount).

In respect to our M&A valuation: In our TMT M&A framework, we rank Altium a 2 (on a scale of 1-3) given its strategic positioning, absence of blocking ownership stakes and regulatory hurdles. **Hence, we include an M&A valuation (15% weighting) of A$51/share**, derived using spot FX and a 42x EV/EBITDA multiple (set at its peak premium to ANZ profitable tech of +46%, applied to current multiples). We note Autodesk's Jun-21 proposal at A$38.50 implied 49x 12mf FactSet consensus EBITDA at the time. We also note M&A continues to be a key theme in the Electronic design industry, with PTC this week proposing to acquire ServiceMax for US$1.46bn to strengthen its PLM offering.

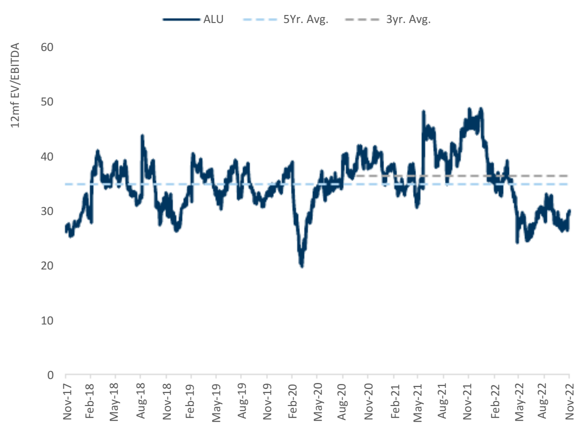
Exhibit 91: We value ALU at A$42
ALU target price based 85%/15% on fundamental/M&A valuations

GS Altium Valuation				
Fundamental Valuation EV/EBITDA	**FY24E EBITDA A$mn**	**Multiple (X)**	**Value US$mn**	**A$mn**
Group	106	31x	3,341	4,987
FY23 Net Debt (Cash)			-217	-324
Equity Valuation			3,558	5,310
Shares Outstanding				131
FX (USD/AUD)				0.67
Fundamental Valuation (85% Weighting)				**40.0**
M&A Valuation EV/EBITDA	**FY24E EBITDA A$mn**	**Multiple (X)**	**Value US$mn**	**A$mn**
Group	106	42x	4,458	6,653
M&A Valuation (15% Weighting)				**51.0**
GS 12m Target Price (A$/Share)				**42.0**

ALU Fundamental Valuation Derivation	12mf EV/EBITDA
Profitable ANZ Tech Comps	28x
ALU premium vs. (3yr. Avg.)	14%
GS Target Multiple	**31x**
ALU 3 Yr. Avg.	36x
GS Multiple vs. Avg.	-12%

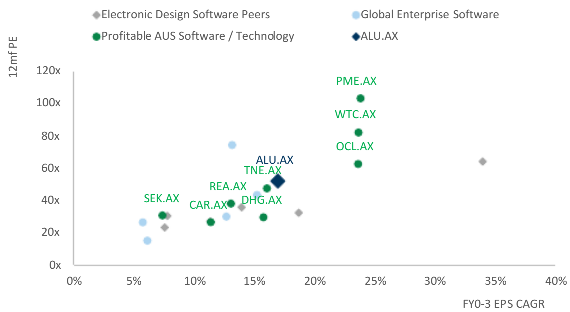
Source: Company data, FactSet, Goldman Sachs Global Investment Research

Exhibit 92: ALU is trading -17%/-15% below its respective 3yr./5yr. average EV/EBITDA multiples
ALU 12mf EV/EBITDA



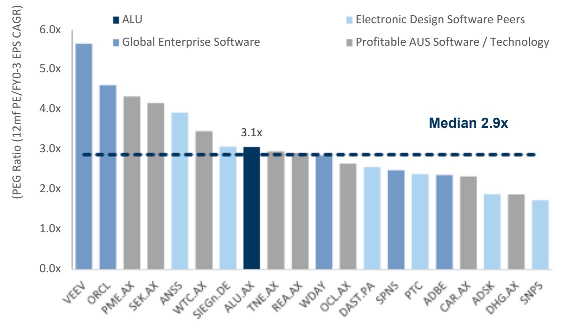
Source: FactSet

Exhibit 93: On an PE basis, ALU trades in-line with peers on a growth-adjusted basis
FY0-3 EPS CAGR, 12mf PE



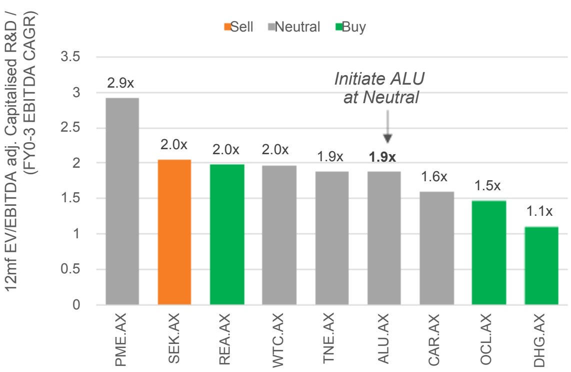
Source: Company data, Goldman Sachs Global Investment Research, Bloomberg

Exhibit 94: On a PEG basis ALU trades broadly in-line with peers
12mf PE / FY0-3 EPS Growth



Source: Company data, Goldman Sachs Global Investment Research, FactSet

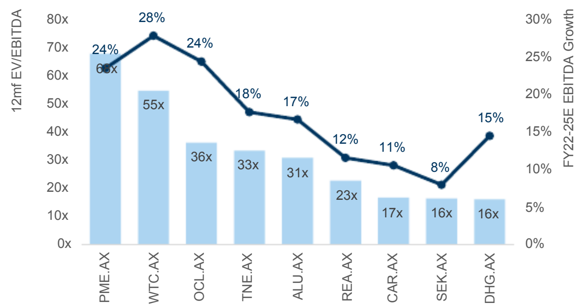
Exhibit 95: ALU also trades below peers on a EV/EBITDA growth-adjusted basis (incl. fully capitalised R&D)
12mf EV/EBITDA (Adj. cap R&D) / (FY0-3 EBITDA CAGR)



Note: REA in on our Regional Conviction list

Source: Company data, Goldman Sachs Global Investment Research

Exhibit 96: ALU's growth and multiple is towards the middle of ANZ profitable tech peers
12mf EV/EBITDA vs. FY0-3 EBITDA CAGR



*Adj. for capitalised R&D, EV excl. adjacents (Seek Growth Fund, REA India)

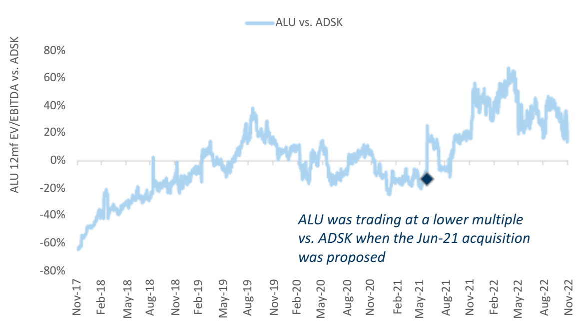
Source: Company data, Goldman Sachs Global Investment Research

Exhibit 97: We note design peers trade at lower multiples vs. historical averages

	Vertical				12mf EV/EBITDA		
	PCB	PLM	MCAD	CAE	Current	3Yr. Avg.	Disc.
ALU	X				29x	35x	-15%
PCB Peers							
Cadence	X				26x	26x	1%
Siemens	X	X	X	X	12x	12x	1%
Zuken	X				7x	9x	-17%
Electronic Design Peers							
Autodesk		X	X	X	24x	36x	-33%
Dassault		X	X	X	22x	25x	-11%
PTC		X	X	X	21x	24x	-13%
ANSYS				X	23x	28x	-17%
Synopsys					24x	23x	6%

Source: Goldman Sachs Global Investment Research, FactSet

Exhibit 98: We note that ALU now trades at a premium to ADSK
12mf EV/EBITDA ALU vs. ADSK



Source: FactSet

Valuation Scenarios - Framing Upside / Downside Risk

We see elevated forecast uncertainty given the global macro outlook. In particular, we note emerging headwinds in PMI momentum (correlated with PCB subscription growth), softening Octopart visitation, and distributor earnings downgrades (linked with Octopart growth); contrasted by significant upside to consensus expectations if mgmt. can execute on their FY26 targets. Hence we outline both upside/downside scenarios, with:

1. **Our Bull case scenario (A$66 valuation, implies +76% upside) factoring in:** Pathway to US$500mn FY26 revenues at 40% EBITDA margins (in-line with targets), and a corresponding re-rating in ALU's multiple to 49x, which reflects the median growth adjusted multiple of profitable ANZ Tech Peers (1.9x, see Exhibit 95) and the stronger EBITDA growth (+25% FY22-25E CAGR). We do not include an M&A valuation given an acceleration in earnings would likely extend the premium past its peak vs. ANZ technology peers (which is the basis of our 15% base case M&A Valuation).
2. **Our Bear case scenario (A$29 valuation, implies -23% downside) assumes:** difficult PCB subscription growth given business uncertainty (10% B&S Rev CAGR) supported by solid pricing, a normalisation in the outlook for Octopart post Covid supply chain tailwinds (11% Rev CAGR), with modest margin expansion, and a corresponding lower fundamental multiple of 22x driving an A$26 fundamental valuation, based on the growth adj. EBITDA multiple of ANZ Technology peers (1.9x) and the softer growth outlook (11% EBITDA CAGR). This fundamental valuation (85% weighting) and a 15% weighting of a M&A valuation of A$48 derived from a lower earnings expectation on 42x EV/EBITDA (in-line with base case), gives an overall bear case valuation of A$29.

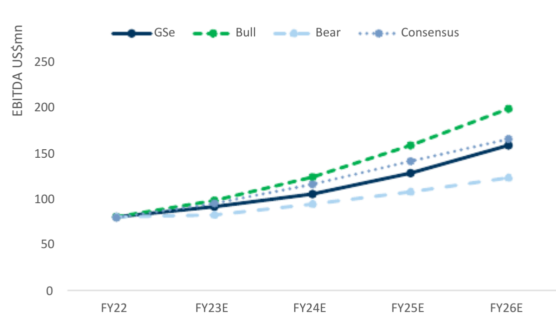
Hence, while we sit below consensus expectations, we see a positive risk/reward skew of 3.3x (76% upside vs. -23% downside) as positive for shareholder return potential.

Exhibit 99: We also outline bull and bear case scenarios, largely driven by execution in the Boards & Systems and Octopart segments
ALU valuation scenarios

	Base	Bull	Bear
Financial Forecasts			
Boards & Systems Rev CAGR	**15%**	18%	10%
Octopart Rev CAGR	**14%**	24%	11%
FY22-25E EBITDA CAGR	**17%**	25%	11%
Fundamental Valuation			
EBITDA Adj. Multiple (12mf / 0-3 CAGR)	**GS SOTP**	**1.9x**	
Implied 12mf EV/EBITDA	**33x**	49x	22x
FY24 EBITDA	**106.1**	116.1	95.1
Price/Share	**40**	66	26
M&A Valuation			
Price/Share	**51**		48
AUD $ Valuation	**42**	**66**	**29**
% Upside/Downside	12%	76%	-23%

Source: Company data, Goldman Sachs Global Investment Research

Exhibit 100: We sit below consensus EBITDA estimates in FY23-25E, given softening macro and Octopart volume moderation
ALU EBITDA forecast vs. Consensus US$mn



Source: Company data, Goldman Sachs Global Investment Research, Visible Alpha Consensus Data

Global Comps Table

Exhibit 101: Altium - Comps Table

	Market Cap	FY0-3 CAGR				GP Margin	EBITDA Margin	EV/Sales		EV/GP		EV/EBITDA		PE		ROE	ND/ EBITDA
	US$mn	Revenue	GP	EBITDA	EPS	FY22	FY22	12mf	24mf	12mf	24mf	12mf	24mf	1Y	2Y	12mf	12mf
Altium	3,242	15%	NM	17%	17%	NM	37%	11.3	9.8	NM	NM	30.9	26.0	51.8	44.4	23%	-2.3
Electronic Design Software Peers																	
Autodesk Inc.	48,209	13%	13%	17%	34%	92%	35%	8.9	7.8	9.6	8.4	23.7	20.0	64.2	51.9	329%	0.3
ANSYS, Inc.	22,145	7%	8%	7%	8%	90%	43%	10.3	9.5	11.5	10.5	23.4	20.9	30.5	27.7	14%	-0.2
PTC Inc.	15,507	9%	9%	14%	11%	82%	41%	8.3	7.5	10.2	9.1	20.6	18.0	27.1	23.3	21%	0.8
Dassault Systemes	49,691	11%	11%	10%	14%	84%	50%	7.6	6.8	9.2	8.2	20.7	18.3	35.8	33.2	20%	-0.7
Siemens AG	99,526	9%	10%	15%	8%	36%	13%	1.4	1.3	3.9	3.4	8.7	7.4	23.3	14.1	14%	0.5
Synopsys, Inc.	51,103	14%	15%	19%	19%	82%	36%	9.0	8.1	11.0	10.0	24.2	21.8	32.5	28.7	24%	-1.5
Average		**11%**	**11%**	**14%**	**16%**	**78%**	**36%**	**7.6**	**6.8**	**9.2**	**8.3**	**20.2**	**17.7**	**35.6**	**29.8**	**70%**	**-0.1**
Global Enterprise Software																	
Adobe Systems	158,714	12%	12%	10%	13%	90%	50%	7.7	6.2	8.6	6.9	15.4	12.5	30.0	27.1	61%	-0.6
Atlassian	32,985	27%	24%	23%	NM	84%	4%	8.4	6.5	10.3	8.2	49.7	33.7	NM	NM	-148%	-2.8
Salesforce	155,275	17%	17%	21%	23%	78%	31%	2.2	1.6	2.8	2.1	6.5	4.8	NM	103.7	10%	-0.3
HubSpot	14,924	26%	26%	35%	NM	82%	12%	6.8	5.5	8.3	6.8	60.5	37.0	NM	NM	14%	-4.4
Qualtrics International Inc.	7,268	24%	26%	75%	NM	77%	8%	4.1	3.4	5.3	4.3	40.7	27.5	NM	131.6	3%	-3.0
Oracle	219,458	11%	10%	7%	6%	80%	51%	5.6	5.1	7.4	6.6	11.8	10.8	26.5	19.3	NM	3.2
Workday	40,857	19%	20%	18%	15%	77%	29%	5.3	4.4	6.9	5.7	20.0	15.9	43.4	32.6	22%	-0.8
Average		**19%**	**19%**	**27%**	**14%**	**81%**	**26%**	**5.7**	**4.7**	**7.1**	**5.8**	**29.2**	**20.3**	**33.3**	**62.9**	**-6%**	**-1.2**
Vertical Leaders																	
GuideWire	5,238	11%	13%	-276%	-225%	52%	0%	5.0	4.4	9.5	8.3	NM	63.6	NM	151.2	NM	-36.2
Sapiens International	1,075	5%	7%	7%	6%	44%	19%	2.0	1.9	4.7	4.4	10.8	9.9	15.2	13.9	NM	NM
Veeva Systems	31,167	15%	16%	12%	13%	75%	42%	11.7	10.0	15.6	13.2	30.2	25.6	74.3	58.4	19%	-2.0
Duck Creek	1,598	10%	6%	31%	30%	65%	8%	3.8	3.4	5.8	5.1	46.0	31.9	86.6	59.8	NM	10.1
Olo	1,269	21%	14%	3%	10%	74%	8%	4.7	4.1	6.6	6.0	52.9	44.4	107.9	62.4	3%	-15.2
Average		**13%**	**11%**	**-45%**	**-33%**	**62%**	**15%**	**5.4**	**4.8**	**8.4**	**7.4**	**35.0**	**35.1**	**71.0**	**69.1**	**11%**	**-10.8**
Low/No profitability AUS Software / Technology																	
Appen Ltd	238	3%	5%	-13%	-36%	41%	5%	0.5	0.4	1.1	1.0	5.7	4.1	320.3	24.7	0%	-0.8
Xero Ltd.	6,760	22%	22%	34%	NM	87%	19%	7.3	6.1	8.3	7.0	32.4	24.5	NM	NM	5%	1.3
SiteMinder	556	25%	24%	NM	NM	69%	-19%	4.8	3.9	7.2	5.9	NM	452.8	NM	NM	-42%	NM
Nearmap Ltd.	674	18%	19%	NM	NM	76%	-4%	4.9	4.2	6.4	5.4	147.3	36.4	NM	NM	-29%	-9.3
Nitro Software Ltd.	333	23%	22%	NM	NM	90%	-38%	4.0	3.3	4.5	3.6	NM	122.6	NM	NM	-28%	NM
PushPay	900	10%	3%	4%	13%	71%	24%	4.0	3.8	6.1	5.8	16.5	14.8	24.4	20.1	17%	-0.3
Tyro	552	15%	13%	67%	-182%	46%	7%	1.9	1.7	4.1	3.7	26.0	18.6	NM	190.0	-3%	-0.1
Fineos Corp.	356	10%	12%	60%	NM	65%	5%	2.2	2.0	3.4	3.0	25.4	15.1	NM	NM	-9%	-1.8
ReadyTech Holdings Ltd	300	23%	23%	21%	18%	94%	35%	4.3	3.7	4.5	3.9	13.2	11.1	24.4	20.6	10%	0.9
Whispir Ltd	52	7%	6%	-189%	-124%	55%	-8%	0.6	0.5	1.0	0.9	NM	8.4	NM	NM	NM	NM
Elmo Software Ltd	310	24%	24%	85%	-149%	91%	17%	3.4	2.8	3.8	3.1	18.3	12.1	NM	NM	-12%	-0.3
Bigtincan Holdings Ltd	258	24%	25%	-269%	-185%	92%	5%	1.5	1.3	1.6	1.4	21.5	12.1	59.8	26.2	2%	-4.4
Block Inc.	41,220	9%	25%	23%	NM	34%	-2%	2.1	1.8	5.8	4.7	30.0	21.6	NM	NM	-2%	-0.3
Megaport Ltd.	629	34%	37%	NM	NM	62%	-13%	5.2	3.8	8.1	5.9	76.0	24.5	NM	NM	-13%	-3.8
Average		**18%**	**19%**	**-18%**	**-92%**	**69%**	**2%**	**3.3**	**2.8**	**4.7**	**4.0**	**37.5**	**55.6**	**107.3**	**56.3**	**-8%**	**-1.7**
Profitable AUS Software / Technology																	
Domain Holdings Australia Ltd.	1,284	12%	NM	14%	16%	NM	36%	5.0	4.5	NM	NM	14.5	12.1	29.6	23.3	6%	0.9
REA Group	10,825	11%	NM	12%	13%	NM	58%	11.7	10.3	NM	NM	20.7	17.6	38.1	32.0	31%	-0.1
SEEK	5,109	7%	NM	8%	7%	NM	46%	7.2	6.9	NM	NM	16.2	15.1	30.7	29.3	13%	2.4
Carsales.Com	5,049	11%	NM	12%	11%	NM	53%	10.1	9.2	NM	NM	18.1	16.4	26.6	24.6	15%	2.1
Technology One Ltd.	2,673	14%	14%	17%	16%	93%	41%	9.1	8.0	9.7	8.6	21.8	18.4	47.5	40.6	41%	-1.0
Objective Corp.	1,000	16%	16%	24%	24%	95%	27%	10.9	9.1	11.5	9.6	35.1	27.4	62.6	47.4	36%	-2.1
WiseTech Global	12,847	21%	22%	26%	24%	87%	50%	22.0	18.1	24.8	20.2	41.2	32.3	82.0	64.9	17%	-1.4
Pro Medicus Ltd.	4,080	22%	22%	23%	24%	100%	75%	45.2	37.6	45.3	37.7	58.8	48.5	103.2	80.7	49%	-0.9
Average		**14%**	**18%**	**17%**	**17%**	**94%**	**48%**	**15.2**	**13.0**	**22.8**	**19.0**	**28.3**	**23.5**	**52.6**	**42.8**	**26%**	**0.0**
Total Median		**14%**	**15%**	**16%**	**13%**	**79%**	**22%**	**5.1**	**4.4**	**7.0**	**5.9**	**22.6**	**18.5**	**35.8**	**32.0**	**13%**	**-0.6**
Total Mean		**16%**	**16%**	**0%**	**-18%**	**75%**	**22%**	**7.0**	**6.0**	**8.5**	**7.2**	**30.7**	**34.8**	**57.9**	**50.5**	**15%**	**-2.0**

Pricing as at 16th November 2022.

Source: Bloomberg, Company data, Goldman Sachs Global Investment Research

Key Risks

1. Successful execution on FY26 aspirations: there remains substantial upside risk to both our estimates and consensus if mgmt. can execute on their FY26 aspirations (US$500mn revenue, 38-40% EBITDA margin). However, this will require an acceleration of the performance in the core PCB business; development of new revenue streams (365); and continued momentum in Octopart (post Covid tailwinds).

2. Step up in investments to drive Enterprise/365 success causing margin dilution: given the substantial roadmap of new features, incl. the cloud based Altium 365 product, integration with adjacent electronic design software (MCAD/PLM etc.) and meaningful plans to improve other functionality (libraries etc.) in addition to the building focus on the Enterprise market (which remains separate vs. ALU's core mid-market proposition), there is a risk that management may invest more than historical levels on product R&D or sales and marketing.

3. Octopart volume outlook: remains a key point of debate given the recent benefits Octopart has seen from: (1) heightened electronics demand; and (2) supply chain constraints, which have driven elevated interest in its electronic part search engine product. Hence, as these conditions normalise, there is downside risk to Octopart's volume outlook, which would likely disappoint the market given the size of the business.

4. Pricing strategy impacts on subscriber net adds/churn: given ALU has rarely increased pricing, there remains uncertainty on the flow on impacts from recent, and potentially ongoing, pricing increases. In particular, this may or may not affect subscriber growth and long run churn.

5. M&A as a target: following ALU's history as a target (proposed bid from ADSK in June-21), there remains upside risk that ALU could be acquired, likely by a strategic partner. Particularly when ALU is very strong in the PCB design vertical, which is an area other electronic design peers do not have a viable offering in market.

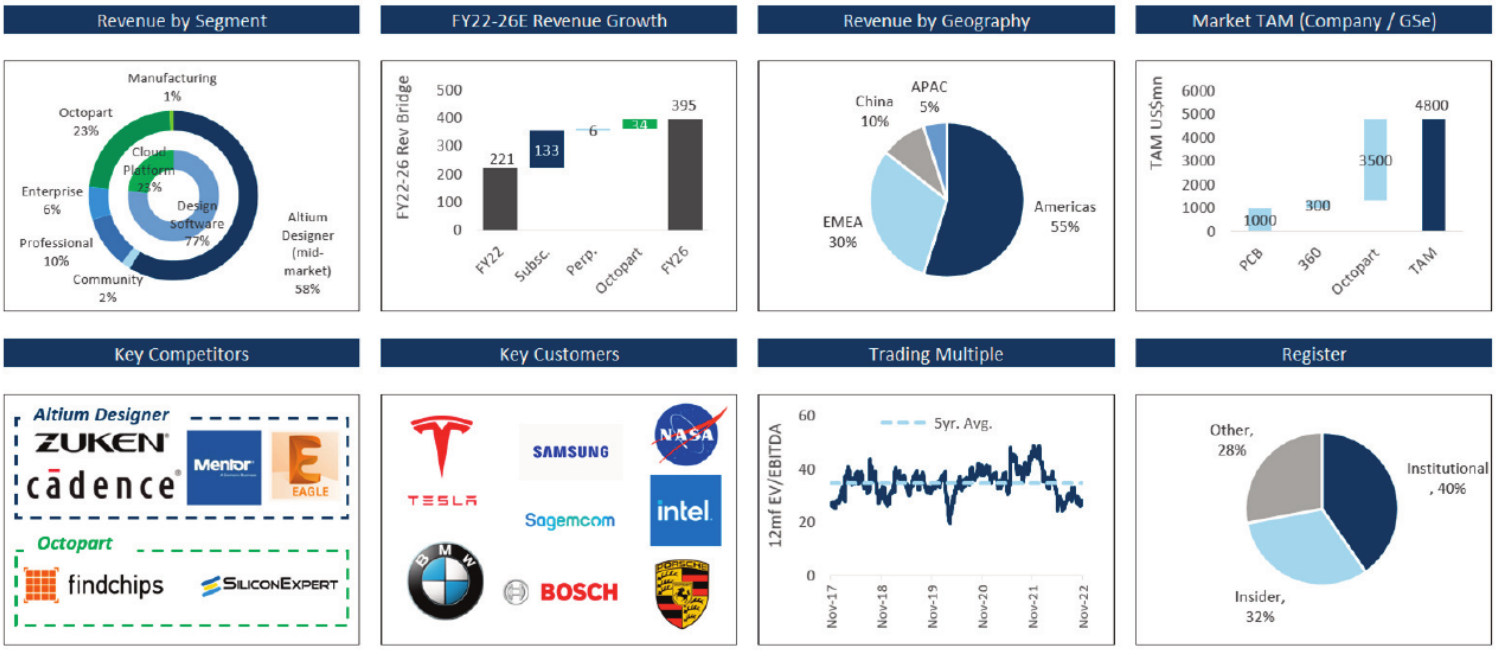
6. Accretive/dilutive M&A: ALU currently has a sizeable cash balance (c.US$200mn), with future expectations of margin expansion and growth in earnings. Hence, there remains the possibility that ALU could pursue either bolt on, or more substantial acquisitions, with the potential to be accretive/dilutive to the strong top line growth and high margin nature of the core business.

Appendix 1: Overview of Altium

Exhibit 102: Altium Company Overview

Altium - Company description

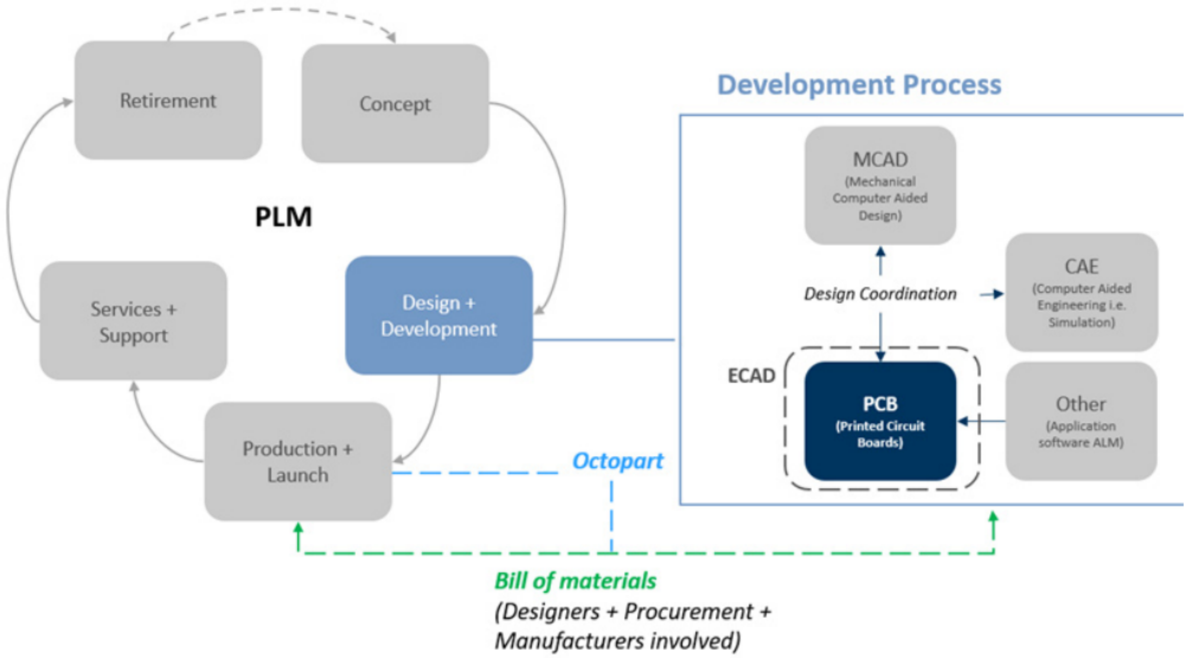
Altium (ALU) is a vertical enterprise software solutions provider to the Printed Circuit Boards (PCB) market (c.US$1bn opportunity, 37% penetration) and broader electronics parts distribution industry (Octopart GSe US$3.5bn TAM, 1.4% penetration). In its Boards & Design segment, the company charges primarily through a subscription model (c.57k customers currently), which primarily targeted towards the mid-market (58% of revenue, 36% PCB TAM), but is beginning to turn its focus to the high-end enterprise market (6% revenue, despite being 57% of PCB TAM). The company also sees an opportunity in connecting other electronics design software, through its cloud base Altium365 product, to unlock the coordination efficiencies involved in this process. ALU's revenue's is skewed to America/EMEA (collectively >80%).



Source: Company data, Goldman Sachs Global Investment Research, Gartner, FactSet

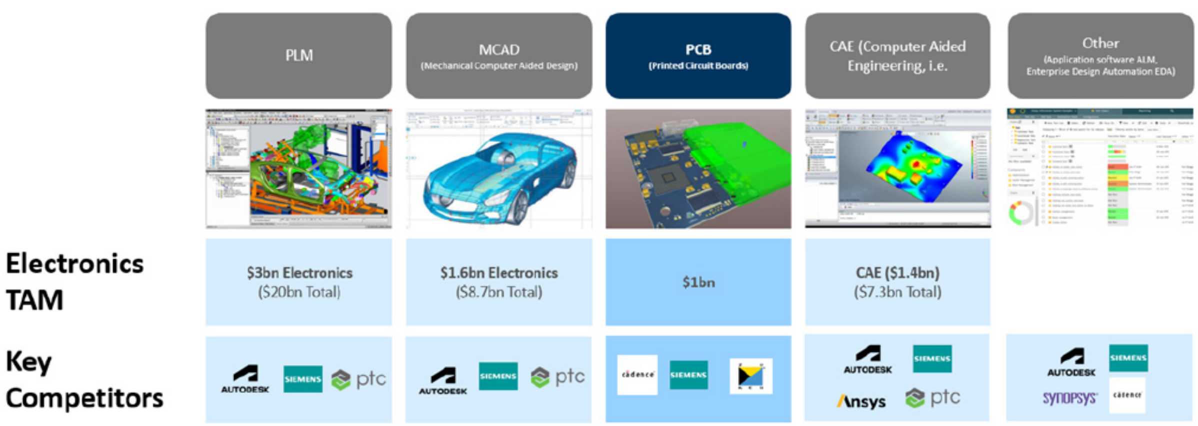
Appendix 2: Where Does Altium fit?

Exhibit 103: Electronic Design Process and Altium touch points



Source: Company data, compiled by Goldman Sachs Global Investment Research

Exhibit 104: Summary of Key Electronic Design Verticals



Source: Company data

Appendix 3: Altium Competitor Analysis

Altium (ALU.AX, Market Cap US$3.2bn) is an Australian based Electronic Design provider, which provides predominantly PCB design software through its Altium Designer product and through Octopart, the leading global electronic parts search engine. The Altium Designer product is predominantly focused on the mid-market, with an increasing push towards the high-end enterprise customer. Altium also operates the Electronic Parts search engine Octopart, which across key metrics (Audience, Revenue etc.) remains the #1 player in the vertical.

Autodesk (ADSK.US, Market Cap US$46bn, Covered by K. Rangan) is a US multi-national software company providing 3D Design, engineering and entertainment software/services for the architecture, engineering, construction, product design, manufacturing, digital media and entertainment industries. Within its manufacturing segment, ADSK has an entry-level product for the PCB market, Eagle, while having previously proposed an acquisition of ALU in Jun-21 (for US$3.8bn) given ADSK's strength in complementary verticals (MCAD/PLM/CAE).

Zuken (6947.TKS, Market Cap US$0.5bn) is a Japanese software provider which focuses primarily on PCB and Circuit design software. The company is skewed towards the enterprise end of the market (Top 20 customers represent US$1-2mn revenue p.a.) and has a geographic skew to Japan/Asia.

Cadence (CDNS.US, Market Cap US$46.3bn) is a US-based electronic design software provider with a focus on the design, analysis and verification of integrated circuits, systems and PCBs. In the PCB segment, CDNS offers OrCad within the mid-market, or Allegro in the high-end enterprise segment, with the majority of sales coming from North America.

Mentor Graphics is owned by European conglomerate Siemens (SIE.ETR, Market Cap US$109bn, Covered by D. Costa), following its acquisition in 2016 for US$4.5bn. The company operates across many aspects of the Electronic Design industry, including the core PCB market through the Xpedition product and PLM, CAE and MCAD product extensions. In particular, Mentor is focused on larger Enterprise currents, given its suite of electronic products, with the business run in the 'Digital industries - software' segment of Siemens (c.7% of revenues), which has grown at a 6% 3-year CAGR (Company data/GS Estimates). Siemens has also acquired Octopart's closest competitor, FindChips, as part of the acquisition of Supplyframe in Aug-21 for €556mn.

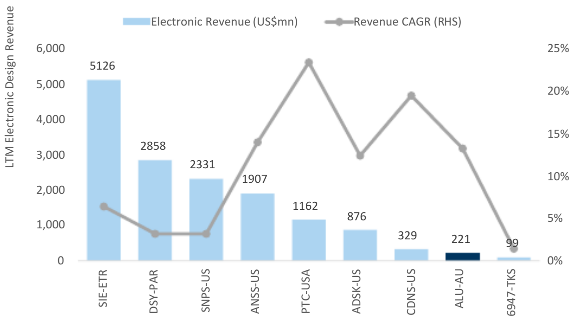
Dassault Systemes (DSY.PAR, Market Cap US$52bn, Covered by M. Moawalla) is a France-based software company which develops 3D product design, simulation and manufacturing software. The company has an existing relationship with Altium for its Solidworks 3D (MCAD), to integrate with Altium Designer (ECAD).

ANSYS (ANSS-US, Market Cap US$22bn) is a simulation specialised software provider, operating out of the US. In particular, the business operates within the CAE/EDA categories.

PTC (PTC.US, Market Cap US$15.5bn) is a US-based software provider, with solutions in the MCAD, PLM and ECAD verticals. The company generates c.2/3 of revenues from its software segment, with multiple products integrating with Altium Designer.

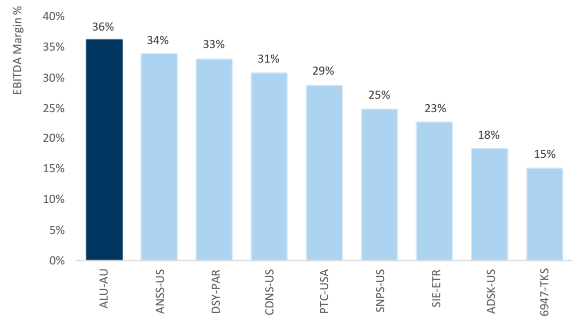
SYNOPSYS (SNPS.US, Market Cap US$51bn): Is an American electronic design automation company which focuses on the silicon vertical (incl. semiconductor design). The business generated $2.3bn of Core EDA revenue in FY21, representing 55% of group revenues.

Exhibit 105: While granular disclosure is somewhat limited, several of ALU's competitors are significant in their electronic design revenues
LTM Electronic Design Revenues US$mn, FY0-3 Consensus Revenue CAGR



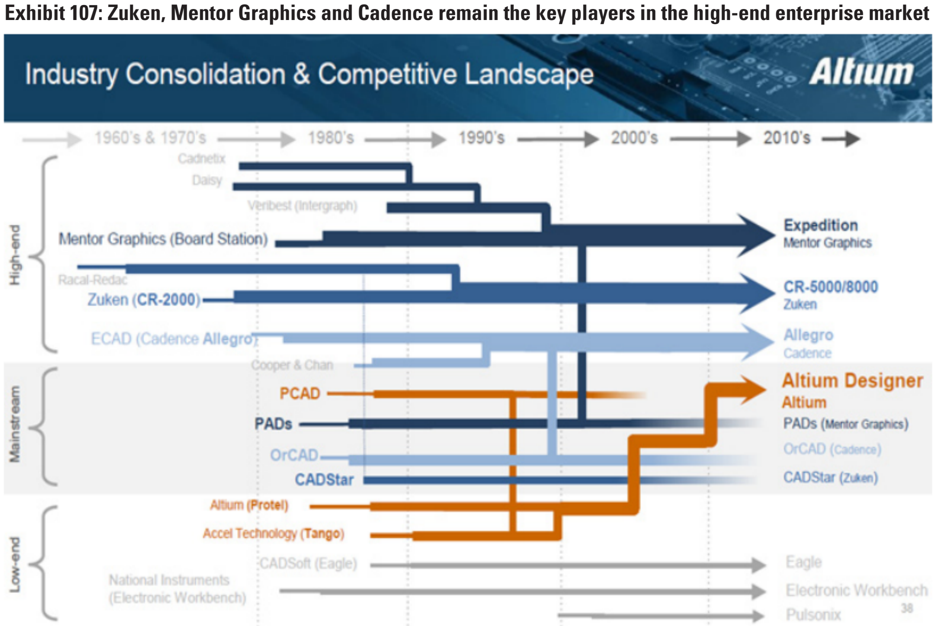
Source: Company data, Goldman Sachs Global Investment Research, Visible Alpha Consensus Data

Exhibit 106: ALU's margins are top quartile vs. Electronic design peers
LTM EBITDA Margins % Sales



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 107: Zuken, Mentor Graphics and Cadence remain the key players in the high-end enterprise market



Source: Company data

Exhibit 108: ALU has a wide competitor set including larger conglomerates (Siemens), and smaller players (Zuken)

Key Electronic Design Players Summary

	Ticker	HQ	Vertical					Market Cap (US$bn)	Electronic Design Revenue				Grou
			PCB	PLM	MCAD	CAE	ther CA		LTM Revenue (US$mn)	Segment	% Group Revenue	3 Yr. CAGR	I
Altium	ALU-AU	USA	X					3.2	221	Group Revenues	100%	13%	
PCB Peers													
Cadence Design Systems	CDNS-US	USA	X				X	46.3	329	Systems interconnect and Analysis	11%	19%	
Siemens (MentorGraphics)	SIE-ETR	Germany	X	X	X	X	X	108.5	5,126	Digital Industries - Software	7%	6%	
Zuken	6947-TKS	Japan	X					0.5	99	PCB + Circuit Design Solutions	35%	1%	
Electronic Design Ecosystem Peers													
Autodesk	ADSK-US	USA		X	X	X	X	50.1	876	Manufacturing	20%	12%	
Dassault Systemes	DSY-PAR	France		X	X	X	X	51.6	2,858	Software - Industrial Innovation	50%	3%	
PTC	PTC-USA	USA		X	X	X		15.5	1,162	Software	64%	23%	
ANSYS	ANSS-US	USA				X		22.1	1,907	Group	100%	14%	
Synopsys	SNPS-US	USA					X	51.1	2,331	Core EDA	55%	3%	

Pricing as at 17th November 2022.

Source: Company data, FactSet, data compiled by Goldman Sachs Global Investment Research

Appendix 4: M&A Framework

Across our global coverage, we examine stocks using an M&A framework, considering both qualitative factors and quantitative factors (which may vary across sectors and regions) to incorporate the potential that certain companies could be acquired. We then assign an M&A rank as a means of scoring companies under our rated coverage from 1 to 3, with 1 representing high (30%-50%) probability of the company becoming an acquisition target, 2 representing medium (15%-30%) probability and 3 representing low (0%-15%) probability. For companies ranked 1 or 2, in line with our standard departmental guidelines we incorporate an M&A component into our target price. M&A rank of 3 is considered immaterial and therefore does not factor into our price target, and may or may not be discussed in research.

Within this context, we have ranked ALU a "2" (representing medium probability of the company becoming an acquisition target) and therefore incorporate an M&A component into our target price. We believe that: (a) there remains strategic benefit in Altium's business for other electronic design software providers, evidenced by ADSK's proposed 2021 acquisition (Strategic = 2); (b) with limited regulatory barriers given the fragmented global nature of the industry (Regulation = 2); (3) limited blocking stakes, noting insiders control <10% of shares (Ownership = 2); (d) while acknowledging size of ALU at A$4.5bn market cap (Size = 3); and (e) current multiples of Altium are ahead of other electronic design peers, incl. at a higher premium to ADSK since their 2021 proposal (Valuation = 3). We therefore assign an M&A rank of 2 and attribute a 15% weighting to our M&A valuation.

Appendix 5: Investment Thesis / Price Target Risks & Methodology - ALU.AX

We are Neutral rated on ALU with a 12m target price of A$42 (FY24E EV/EBITDA based, 85% fundamental, 15% M&A valuation). Key upside/downside risks: (1) Successful execution on FY26 aspirations; (2) Step up in investments to drive Enterprise/365 success causing near-term margin dilution; (3) Octopart volume outlook; (4) Impact of higher pricing on subscription momentum; (5) M&A as a target; and (6) accretive/dilutive M&A.

Altium (ALU) is a vertical enterprise software solutions provider to the Printed Circuit Boards (PCB) market (c.US$1bn opportunity, 37% penetration) and broader electronics parts distribution industry (Octopart GSe US$3.5bn TAM, 1.4% penetration). We are Neutral rated on ALU, despite valuation screening well against peers, given a balanced risk/reward. We see upside risks from: Successful execution on FY26 aspirations, noting increased confidence at FY22 results; and M&A, given its highly strategic assets in the EDA industry. We see downside risks from: Further delaying US$500mn target beyond FY26; Enterprise execution is yet to be proven; and Octopart traffic headwinds do not look to be fully appreciated. Key catalysts include: high frequency Octopart data, Feb-23 results, and US PMI data.

Disclosure Appendix

Reg AC

We, Kane Hannan, CFA, Benjamin Rada Martin and Chris Gawler, CFA, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

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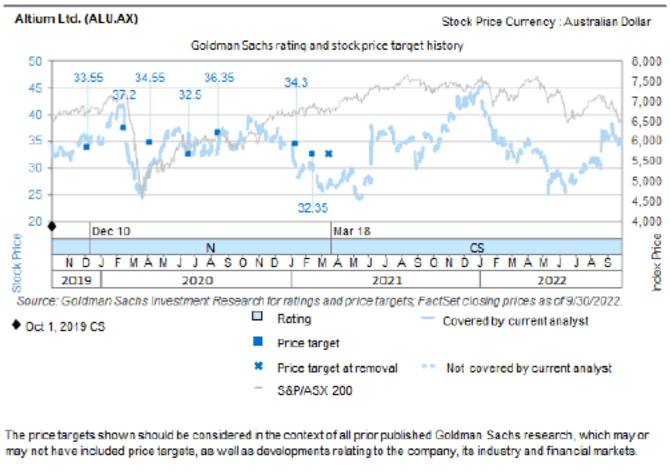

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