

December 21, 2001

# Telecom sub-suppliers

## Major changes in the value chain ahead

This update summarises two issues:

- We see fundamental change in the value-chain ahead of us, boosting new type of business model and triggering consolidation among sub-suppliers.**

  - Change in the value-chain is significant and is seen triggering consolidation among the sub-suppliers.** At Handelsbanken's 3<sup>rd</sup> annual Telecom Supplier Seminar **Nokia, Ericsson** and **Siemens** all agreed that their future focus will increasingly be on software and as handsets' hardware technologies mature the hardware part would eventually be outsourced more or less completely, including design of the electronics.
  - Our best picks are **Perlos (BUY)** and **Elcoteq (BUY)**. **Eimo's (BUY)** focus is on consolidating Triple S Plastics, thus its upside lies more in GPRS phones and in its initiating business with Flextronics. Perlos is more likely to be *horizontally* active joining forces with likes of **Nypro (US)** while **Elcoteq (BUY)** would gain more from *vertical* consolidation. **Flextronics** has been the most aggressive in acquisitions for some time now. **Solectron/C-MAC**, and **Sanmina/SCI Systems** deals were valued at 0,7x 2002E sales.
- Mobile phone market lacks hard evidence of a fundamental turnaround in end-user demand. Hopes have been raised, though.**

  - Although semiconductor industry shows improving order books, this is, however, largely due to getting rid of excess inventories. Signals of fundamentally improving handset markets are still fairly vague, unfortunately. OEMs like Nokia and Motorola are pushing up their market shares but expectations for total handset shipments for 2002 have remained cautious.
  - Q3 comments showed some growth in confidence as many stated that the worst is now behind us. Christmas surely triggers sales, but Q4 expectations suggest, however, sequential decrease in shipments when seasonally adjusted. We recommend avoiding **Aspocomp (REDUCE)**, **PMJ Automec (REDUCE)**, and **JOT Automation (SELL)** at this stage.

### VALUATION AND STOCK PERFORMANCE

	Country	Target Price	Diff.	Rec.	PE'01	PE'02	PE'03	STOCK PERFORMANCE					
								-1W	-1M	-3M	-6M	-12M	
Ericsson	SWEDEN	85.0	55.5	53%	SB	n.m.	57.3	20.5	-13%	-3%	45%	4%	-51%
Nokia	FINLAND	30.0	27.4	10%	B	36.6	31.1	24.8	-5%	-4%	59%	5%	-47%
Aspocomp	FINLAND	9.0	12.0	-25%	R	n.m.	209.9	8.9	-7%	-8%	20%	-14%	-59%
Comptel	FINLAND	1.9	3.2	-40%	S	35.4	33.5	22.4	-16%	-15%	15%	-67%	-79%
Eimo	FINLAND	2.2	2.1	6%	B	34.2	19.9	9.0	-8%	-5%	93%	22%	-64%
Elcoteq	FINLAND	10.3	9.5	9%	B	n.m.	17.5	7.5	-3%	-1%	80%	11%	-75%
JOT Automation	FINLAND	0.4	0.5	-20%	S	n.m.	n.m.	36.7	-15%	-17%	35%	-36%	-81%
Nolato	SWEDEN	80.0	62.0	29%	B	n.m.	38.4	11.1	-8%	9%	48%	27%	-49%
Perlos	FINLAND	13.5	11.9	13%	B	15.5	13.1	12.3	-3%	-7%	49%	11%	-50%
PMJ Automec	FINLAND	0.6	0.6	2%	R	n.m.	80.7	10.5	-16%	-18%	-6%	-42%	-90%
AFGX	SWEDEN	224.7							-4%	-1%	19%	-3%	-20%
HEX	FINLAND	8436.9							-4%	-3%	41%	2%	-39%

Source: Handelsbanken Investment Banking

Research: <http://www.handelsbanken.se/er>  
 Multex: [www.multexnet.com](http://www.multexnet.com)  
 I/B/E/S: [www.ibes.com](http://www.ibes.com)

Reuters: [www.session.rservices.com](http://www.session.rservices.com)  
 First Call: [www.firstcall.com](http://www.firstcall.com)  
 Bloomberg: [www.bloomberg.com](http://www.bloomberg.com)

## Outperform

STRONG BUY	Ericsson
BUY	Nokia
BUY	Eimo
BUY	Elcoteq
BUY	Nolato
BUY	Perlos
REDUCE	Aspocomp
REDUCE	PMJ Automec
SELL	Comptel
SELL	JOT Automation

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## Investment case

The mobile phone industry is facing dramatic and fundamental changes in the value-chain in the near future and is likely to push the sector toward fairly aggressive consolidation.

- At the same time as handset **OEMs (original equipment manufacturers)** identify increasing added value and earnings potential in the software side, hardware technologies get increasingly more mature, thus making it rationale for the OEMs to outsource larger part of the value-chain i.e. including also the design functions on the hardware side especially.

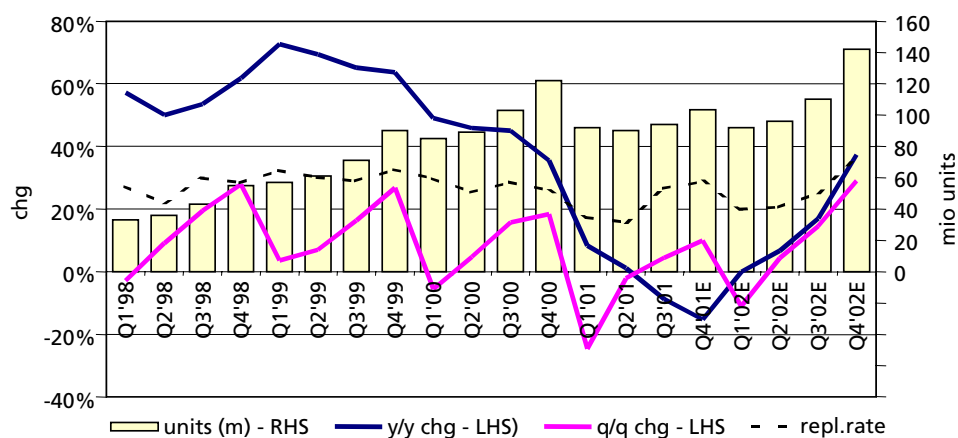
This is generating a new type of business called **original design and manufacturing (ODM)** services. One can consider an ODM company as an **electronic manufacturing service (EMS)** provider having also design capabilities for electronics in mobile phones for instance.

- Such development should make contract manufacturers to extend their services more toward product design and total project management. When a contract manufacturer turns into an ODM company it gains full responsibility of the products in question and thereby gets more power to choose which component suppliers to use.

This scenario has forced component suppliers to rethink their consolidation strategies. As **Perlos** stated in our seminar: "it is becoming a power game now". We hence expect to see increased M&A activity in the near future. Our best picks on back of this are **Perlos** and **Elcoteq**.

Apart from the value-chain implications noted above, we see little evidence on fundamentally increased demand for mobile handsets. Although semiconductor companies have given statements of improved order intake, this is largely due to reduction of excess inventories, which naturally improves visibility but is not enough sufficient information in order to make optimistic projections for the handset market based on it. Nokia's current estimates suggest that the Y/Y change in total worldwide handset shipments is decreasing sequentially from -9% in Q3'01 to -15% in Q4'01. Hence, in a seasonally adjusted comparison Q4 seems weaker than Q3 this year. In addition, according to Nokia, the first half of next year will show fairly moderate total shipments for global volumes in total. Motorola gave similar guidance in its most recent quarterly update. Much of full year expectations are hence laid on the latter part of year 2002.

**ESTIMATED QUARTERLY MOBILE PHONE SHIPMENTS**



Source: Nokia, Ericsson, estimates by Handelsbanken Investment Banking

We see that companies that are best positioned in respect to the change in the value-chain and sector consolidation should also be the largest gainers in stock market as well. We therefore recommend buying **Perlos** and **Elcoteq** on back of upcoming activity.

## Investment conclusions

**Ericsson (STRONG BUY) remains as our top pick** due to the turnaround we are seeing in its costs and earnings. Target: **SEK 85**.

**Nokia (BUY) is certainly gaining market share** in Q4 as loyal users finally upgrade models. As overall demand is weak, this will inevitably trigger market share gains in the short term. However, we are slightly concerned about the timing of the product pipeline. Nokia's top model, the 7650, will not be on the market before Q2 2002, and there is no sign of its second GPRS phone, the 6310, even though it was expected to come onto the market for Christmas. Target: **EUR 30**.

**Out of the sub-suppliers, we continue to favour Perlos (BUY)**, supported by industry-beating efficiency metrics and its comments about getting involved in the consolidation process. We see that Perlos offers smallest risk in earnings disappointment and is in our view clearly the best positioned to take advantage of the changes in the value-chain. Target: **EUR 13,5**.

**The second stock we prefer is Elcoteq (BUY)**. The company is excellently positioned to expand its business toward ODM model. The company was among the very first, if not the first, contract manufacturers to go into handset manufacturing. Since early 1980's the company has grown alongside with Ericsson and Nokia and has generated industry beating knowledge and competence as regards to mobile phone manufacture. Elcoteq should thus be best equipped to exploit the new business opportunities driven by changing value-chain strategies. Based on most recent acquisitions by Sanmina (acquired SCI Systems) and Solectron (acquired C-MAC), i.e. 0,7x sales 2002E, Elcoteq's share could be valued from an industrial point of view at EUR 44. Target: **EUR 10,3**.

Although we like to think that **Eimo (BUY)** could benefit from its business with Flextronics, we also note its exposure to Nokia's GPRS models which, in terms of number of models released, is not yet proving fruitful. Several models have been in the pipeline for some time now, but for some reason, only a few (including the GPRS phone, 8310) have found their way to stores. Target: **EUR 2,2**.

When it comes to **Nolato (BUY)**, we see the company, like Ericsson, improving its earnings and valuation. The company is the prime supplier of Ericsson's top model, the T68, which should support Nolato's earnings further. Target: **SEK 80**.

In a more bearish mood, **we maintain a REDUCE recommendation on Aspocomp** amid continuously low capacity utilisation rates, especially in infrastructure, where we have not yet seen the expected boom in demand. Target: **EUR 9,0**.

**We also maintain PMJ Automec at REDUCE** due to continuing over capacity situation in mobile handset and electronics production, which we do not see improving in the foreseeable future. As a result of this PMJ has posted several profit warnings. The latest being from December, 18<sup>th</sup>. Target: **EUR 0,6**.

**JOT Automation is kept as a SELL** recommendation as we find close to 40% downside in its share price amid a stretched balance sheet and challenges with a renewed product portfolio in markets similar to PMJ's. Target: **EUR 0,35**.

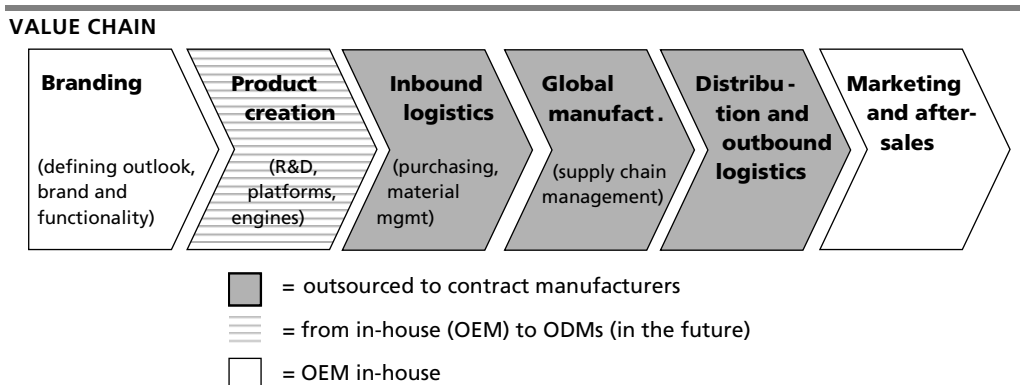
**For Comptel, we reiterate the SELL recommendation** due to the challenging valuation. We see that price of close to 40x next years earnings is unsustainable given the limited revenue potential in the coming 6 months. We expect Comptel to show losses for the first time in its history in Q4 2001 and to remain in the red in Q1 2002. Consequently, we do not see the valuation holding up when losses are revealed. In the end of the day, as data-traffic takes off Comptel's outlook will improve significantly. We are not, however, yet there. Target: **EUR 1,9**.

## Changing the value chain

In the future, **OEMs** (original equipment manufacturers) will increasingly rely on semiconductor vendors to be the true hardware enablers of next-generation designs, and will instead **focus more on differentiating their handset designs by way of software development, bundled services, and, of course, consumer branding**. While semiconductor vendors hold the key to developing chipsets' technological capabilities, they do not yet have the design expertise required to minimise throughput time in mass volume production. In the light of this, Infineon, the world's No.5 semiconductor supplier for cellular handsets, recently announced that it was joining forces in a strategic alliance with Solectron, the world's No.1 electronics manufacturing services provider (EMS). Infineon and Solectron are thus taking their first steps towards being able to offer global ODM (original development manufacturer) services.

Nokia agrees that it would not be impossible to use engines offered by Ericsson or Motorola, which underlines the change in approaches, even in the most captive OEM currently dominating the world market.

**Emerging ODMs have the capabilities of OEMs**, without having their own brand or taking care of marketing and retail network relations. In our view, the ODM model will build up good momentum and create new business opportunities for several players.



Source: Handelsbanken Investment Banking

**The change in value chain strategy and the emergence of the ODM business model have several implications for the underlying sub-supplier sector:**

- Consolidation will be triggered by the re-allocation of market share.** ODMs have the responsibility of planning production and choosing their suppliers on the basis of the design they use. This may raise the question whether component prices become an issue for the ODM in question. In such cases, the larger volumes a supplier can deliver, the lower unit prices it can offer, and hence re-allocating market share may trigger consolidation. However, we see that price will not be the dominant factor that separate winners from losers in the very short term.
- EMS providers are being given a window of opportunity**, as they have the expertise to plan and carry out mass-volume manufacturing. Coupled with design house capabilities, these entities could take on full OEM capabilities. Without going into branding, they could offer products based on unified platforms (either in-house designed or externally purchased) for various brand holders, and hence could make more money for all parties. There would then be economies of scale in both design and production. **Infineon's** and **Solectron's** recent alliance shows

that the game has started. Activity is also continuing on the horizontal level. Most recent corporate transaction, i.e. Sanmina/SCI Systems and Solectron/C-MAC, suggest an industrial value for Elcoteq's share of EUR 44 or close to 5 times its current share price.

3. **Suppliers with leading skills in development and innovation are strongly positioned.** Initiatives such as developing plastic covers that change colours according to the caller (electrical plastics), or developing PCBs (printed circuit boards) with embedded active components are examples of this type of initiative. Not only cool gadgets but also higher value chain efficiency enable ODMs to achieve a shorter throughput time, without compromising quality. Without the background that OEMs have (i.e. a history of developing these things from scratch since the early 1980s), it is exceptionally difficult to manage everything on your own. Hence we believe that the value will be spread to a group of fewer suppliers who are more advanced in R&D. Such companies with leading R&D capabilities in their segments are **Perlos** and **Aspocomp**.

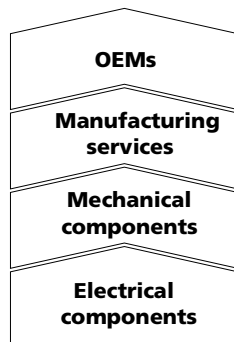
At our seminar, participating sub-suppliers including **Elcoteq**, **Perlos** and **Eimo** agreed and confirmed that these foreseeable changes are forcing them to take an active part in consolidation. In products where OEMs outsource everything but branding and marketing, sub-suppliers will face new customers, i.e. ODMs. OEMs are hence being replaced by ODMs as clients from a sub-supplier's point of view. A new market game will take shape – and it'll be a power game.

Apart from these fundamental changes in the value chain, we have heard mixed signals from various industry members, as regards the immediate near-term outlook.

## Cautious outlook, though there is renewed hope

We split the **various members of the value chain** that give indications about the industry outlook into four groups: 1) OEMs, 2) EMS providers, 3) mechanical component suppliers, and 4) electronic component suppliers. OEMs easily have the most knowledge about the general market trends for both demand and value chain management, while service and component suppliers' comments put more focus on the very short-term business outlook.

### VALUE CHAIN, VERTICALLY



Source: Handelsbanken Investment Banking

We have received the following guidance from various members of these groups.

1. **OEMs.** Given its market leadership, Nokia's expectations should provide the most accurate outlook. In Q4 2001, Nokia expects total handset markets to show 10-15% sequential growth, or a 11-15% y-o-y decrease in shipments, totalling 105-110 million for the quarter. If this holds, then the markets would show a decrease in Q4 over Q3 in a seasonally adjusted comparison, as in Q3 2001 the total markets showed +4% growth sequentially and a 9% decrease in y-o-y terms. In the light of such adjustments, the slowdown can even be said to be accelerating slightly. For 2002, **Nokia** estimates that 420-440 million mobile phones will be shipped in total, while **Motorola** forecasts 420-460 million, and **Siemens** 420-450 million. **Ericsson** refuses to give specific estimates yet, saying only that it foresees "some" growth next year.

At our seminar **Nokia said that shipments in H1 next year would be modest, before sequential growth turned steeper in H2.** In 2002, Nokia expects replacements to account for 55% of total shipments (2001e: 48%). The greater the dependence on replacements, the greater the dependence on general macroeconomic conditions. Until the general macro conditions show a clear improvement, we should expect comments on total handset markets to remain fairly cautious.

### RELATIVE VALUATION, OEMS

	Curr Price	Mkt cap. (m)	PE'01	PE'02	PE'03	P/S'01	P/S'02	P/S'03	PRICE PERFORMANCE				
									-1W	-1M	-6m	-12M	
<b>Alcatel</b>	E	8.1	207	27.0	32.4	12.9	0.4	0.5	0.4	-10%	-24%	-46%	-86%
<b>Ericsson</b>	SK	55.5	411,215	-25.5	106.7	34.9	1.8	1.9	1.7	-10%	-4%	3%	-53%
<b>Motorola</b>	US\$	15.8	35,078	-49.3	175.1	30.3	1.2	1.1	1.0	-7%	-12%	20%	-19%
<b>Nokia</b>	E	27.4	129,345	38.5	34.2	28.8	4.1	3.6	3.2	-4%	-2%	2%	-48%
<b>Philips</b>	E	32.8	43,167	-30.9	49.0	17.8	1.3	1.3	1.2	1%	2%	13%	-18%
<b>Samsung</b>	KW	264000.0	39,950,576	15.6	16.3	n/a	n/a	n/a	n/a	-2%	21%	28%	50%
<b>Siemens</b>	E	70.5	62,906	33.6	17.8	13.1	0.7	0.6	0.6	1%	4%	-6%	-24%
<b>Median</b>				<b>15.6</b>	<b>34.2</b>	<b>23.3</b>	<b>1.2</b>	<b>1.2</b>	<b>1.1</b>				

Source: Datastream, I/B/E/S

1. **EMS providers.** Although capacity reservations and adjustments are made in accordance with delivery expectations over a longer period of time, giving some pointers to mid-term expectations, EMS companies get their final orders only 2-6 weeks prior to delivery. Hence their guidance on sales is based on fairly limited information. As the outlook for shipments hasn't improved over the past few months, and has even actually weakened a little, the excess capacity problem is still limiting optimistic comments on 2002 earnings for these vendors. According to **Solectron (SLR)**, the world's No.3 handset contract manufacturer, sequential growth over the coming 12-18 months will be fairly flat. Over 30% of SLR's revenues are attributable to telecommunications (13% from mobile communications and 18% from telecom equipment). Solectron expects Q4 2001 sales to be down 10-20% on the previous quarter.

**Flextronics**, the world's No.2 EMS for handsets is **more positive** in its comments. It claims to be seeing signs of handset orders recovering, particularly in Asia. Moreover, Europe and the US are also showing improvements in activity levels. However, due to several plant acquisitions and outsourcing deals conducted recently, Flextronics' expectations do not purely reflect the general market conditions. According to our projections, Flextronics should overtake Elcoteq and gain the No.1 position in handset manufacturing services next year, thus becoming a challenger even to Nokia. Flextronics is expected to show 5% sequential sales growth in calendar Q4 2001. Around 30% of its total revenues are attributable to handheld devices, with Ericsson generating 15-20% of total sales.

Finally, **Elcoteq**, still the world's leading EMS for handsets, expects **some 10-15% sequential growth in calendar Q4 2001**. The company has lost significant business with Ericsson as a result of the latter's decision to outsource almost all its production to Flextronics. Currently, Elcoteq is the major EMS provider for Nokia, which claims to have an outsourcing rate of 20%. We feel that Elcoteq is extremely well positioned in terms of extending its services portfolio more into the ODM type of business. The company has the required know-how for planning production, but lacks the actual product R&D (baseband, RF) capabilities. A vertical merger or acquisition would further improve Elcoteq's competitiveness, and mean that it would not be left out of the game if Nokia chose to go into an ODM model. We would like to see Elcoteq joining forces with companies such as **Infineon, National Semiconductor or Analog Devices**. In the light of the trends identified here, Elcoteq's extremely low valuation relative to its competitors has made it an even more attractive acquisition candidate. **Thus we retain our BUY recommendation for Elcoteq.**

#### RELATIVE VALUATION, EMS

	Curr	Price	Mkt cap. (m)	PE						PRICE PERFORMANCE			
				PE'01	PE'02	PE'03	P/S'01	P/S'02	P/S'03	-1W	-1M	-6m	-12M
<b>Celestica</b>	<b>CS</b>	47.6	8,930	34.7	31.3	26.3	0.9	0.8	0.7	-9%	0%	0%	-26%
<b>Elcoteq</b>	<b>E</b>	9.5	179	-10.5	24.9	7.0	0.1	0.1	0.1	-2%	-4%	9%	-74%
<b>Flextronics</b>	<b>SS</b>	24.2	11,639	37.2	26.6	n/a	0.9	0.8	n/a	-12%	-2%	14%	-14%
<b>Jabil Circuit</b>	<b>US</b>	24.8	4,739	35.9	22.7	n/a	1.1	0.9	n/a	-18%	-8%	-1%	-11%
<b>Sanmina</b>	<b>US</b>	21.5	6,890	39.8	20.9	14.8	0.8	0.6	n/a	-14%	10%	6%	-35%
<b>Solectron</b>	<b>US</b>	10.8	7,234	32.8	16.1	n/a	0.5	0.4	n/a	-31%	-20%	-36%	-66%
<b>SCI Systems*</b>	<b>US</b>	delisted	n/a	n/a	n/a	n/a		0.8					
<b>C-MAC*</b>	<b>CS</b>	delisted	n/a	n/a	n/a	n/a		0.7					
<b>Median</b>				<b>35.3</b>	<b>23.8</b>	<b>14.8</b>	<b>0.9</b>	<b>0.8</b>	<b>0.4</b>				

\* based on acquisition price

Source: Datastream, I/B/E/S

1. **Mechanical component suppliers.** These suppliers are involved in the manufacture of products such as plastic covers that do not have electrical components. The world's leading non-captive suppliers in this category are **Perlos (FIN), Eimo (FIN)**,



**Nolato (SWE), Balda (GER), InteSYS (US), and Nypro (US).** Components such as covers are delivered some 1-2 months prior to finished products being shipped.

Comments on outlook from the companies tend to differ depending on who their largest customer is. Those close to Nokia are most bullish about the near future, and companies with more diversified customer bases are more cautious. Nokia's market share gains and good news on the 8310 model have been particularly positive for Eimo.

**Perlos** states that the market has not provided any evidence of a fundamental increase in demand. It is very cautious in its statements and expects markets to grow by only 10% in 2002. Perlos's newest Nokia model, the 6310 (GPRS), hasn't been released yet, which could result in some profit taking on the share in the short run. However, the change in the value-chain has forced the company to change its negative view of acquisitions and mergers. According to Mr Leinilä, CEO, it is now a "power game". Clearly, he now sees that size will matter and so has a more positive attitude to getting involved in consolidation.

We foresee increased activity in terms of consolidation and see Perlos well positioned to gain from the trend. The stock remains our favoured pick due to the company's outstanding record of managing internal efficiency and withstanding periods of economic instability.

Neither **Perlos** nor **Eimo**, world's # 3 in mechanical components, saw any great advantage to joining forces. There are obvious cost synergies, but benefits for sales are less clear. Both companies have reasonable global coverage, so there is little for either to gain in terms of access to new markets. Horizontal activity with another of the other leading vendors would probably be more beneficial. We could see **Nypro** (world's no. 2), a private US-based company with a strong foothold in Latin America, being a possible candidate.

We regard **Eimo** as one of the companies that has suffered from poor performance, but which might benefit from its handset projects with **Flextronics**. As Flextronics is becoming one of the world's largest handset manufacturers after several plant acquisitions and outsourcing deals (e.g. Ericsson, Motorola, Siemens and Philips), it surely offers great upside potential for partners close to it. Although we see Eimo's trading multiples remaining at current levels, next year's earnings may well turn out higher than currently estimated, triggering an increase in the share price. Its Swedish peer, **Nolato**, is also involved with Flextronics, with Ericsson's T68, the hottest LME model on the market, and so should benefit also.

**Consolidation ahead.** The competition arising from, for example, pirate manufacturers will increase the need for differentiation. As technologies mature then maintaining leadership as a mechanical component supplier will require a clear focus on technological development and innovation, e.g. embedding integrated circuits into plastics or optics that makes the cover change colour depending on who is calling. Such initiatives are likely to make players seek close co-operation or even consolidate for R&D purposes to gain further technological knowledge and control over their market shares.

#### RELATIVE VALUATION, MECHANICAL COMPONENT SUPPLIERS

	Curr Price	Mkt cap. (m)	PE'01	PE'02	PE'03	P/S'01	P/S'02	P/S'03	PRICE PERFORMANCE				
									-1W	-1M	-6m	-12M	
<b>Balda</b>	E	8.4	280	30.9	18.6	16.4	1.6	1.2	1.1	-14%	-18%	-29%	-72%
<b>Eimo</b>	E	2.1	134	29.6	14.8	9.9	0.9	0.5	0.5	-6%	-8%	18%	-64%
<b>Nolato</b>	SK	62.0	1,043	-4.9	26.4	12.1	0.4	0.4	0.4	-2%	2%	27%	-44%
<b>Perlos</b>	E	11.9	628	16.6	15.5	13.7	1.4	1.3	1.2	-2%	-8%	8%	-50%
<b>Median</b>				<b>23.1</b>	<b>17.0</b>	<b>12.9</b>	<b>1.1</b>	<b>0.9</b>	<b>0.8</b>				

Source: Datastream, I/B/E/S

1. **Electronic component suppliers.** Semiconductor and PCB companies have been facing very volatile market conditions. **Texas Instrument (TI)**, world leader in semiconductors for mobile phones, expects calendar Q4 2001 to show a 10% sequential decrease in sales.

As a result of reduced excess inventories in all parts of the supply chain, end-user demand has gradually started to turn into orders. As TI puts it: "In Q3 we saw orders bottoming, Q4 will be the floor for earnings". This has especially been the case in the wireless segment where sequential growth seen in Q3 2001 is expected to continue also in Q4. TI is also Nokia's, among others, prime supplier in application specific integrated circuits (ASIC).

Also **Epcos**, leader in semiconductors (passives) in Europe, gave similar indications. Reduced inventories are generating orders despite end-user demand remaining relatively static. Epcos estimates total handset shipments in 2002 to amount to only ~420m, i.e. the lower end of the ranges given by the leading handset vendors. Due to inventories dropping, semiconductor companies are projecting fairly strong growth for next year despite no corresponding change in end-user demand. This can be seen in figures from Epcos below.

#### EPCOS' CALCULATIONS AND ESTIMATES

	CY 2000	CY 2001e	CY 2002e
<b>Growth subdued in 2001 and 2002 <sup>1)</sup></b>			
■ Electronics	12%	-7%	0%
■ Semiconductors	37%	-32%	3%
■ Passive Components	28%	-10%	2%
<b>Mobile handsets (millions) <sup>2)</sup></b>			
■ Mobile subscribers <sup>3)</sup>	733	930	1100
■ Handsets sold	410	400	420
■ Handsets produced	>410	350	420
■ Components supplied	>410	310	420

1) Henderson Report, Oct. 01 / WSTS, Sept. 01 / ZVEI, Sept. 01    2) EPCOS estimates    3) Analysts' estimates

Source: Epcos

Some cautious comments have also been heard from **Murata**, the world's largest maker of ceramic capacitors<sup>1</sup> for mobile phones. In conjunction with its H2 report in mid-November, it stated that the signs of a recovery seen in October had been diminishing in November. According to the company, the outlook for the coming six months had become "rather difficult".

In our view, there will be a period of increased orders due to inventories dropping. However, if end-user demand continues to be weak, the improvement may turn out to be short-lived. As the CEO of Texas Instruments, Mr Engibous, stated just recently: "the best thing to say about 2001 is that it's almost over. The only prediction that I'm certain about of right now is how many days are left in the year."

<sup>1</sup> Ceramic capacitors as well as resistors are passive components. The table following notes leading suppliers of RF/IF and baseband components (active components).

However, there still is positive sentiment in Nokia's comments. The question is whether this view is more of a company than industry-specific phenomenon. The only thing we can say for sure is that we agree with Mr Engobous.

#### LEADING BASEBAND AND RF/IF SEMICONDUCTOR SUPPLIERS FOR MOBILE PHONES, 2000

mUSD in 2000	Baseband	mkt share	RF/IF	mkt share	total	mkt share
<b>Texas Instruments</b>	2280	37%	0	0%	2280	<b>25%</b>
<b>Motorola</b>	648	10%	831	28%	1479	<b>16%</b>
<b>Philips</b>	931	15%	393	13%	1324	<b>15%</b>
<b>Qualcomm</b>	780	13%	330	11%	1110	<b>12%</b>
<b>Infineon</b>	431	7%	548	19%	979	<b>11%</b>
<b>ST Microelectronics</b>	266	4%	278	10%	544	<b>6%</b>
<b>Agere Systems</b>	260	4%	0	0%	260	<b>3%</b>
<b>Matsushita</b>	209	3%	36	1%	245	<b>3%</b>
<b>NEC</b>	179	3%	0	0%	179	<b>2%</b>
<b>Conexant</b>	35	1%	80	3%	115	<b>1%</b>
<b>National Semiconductor</b>	0	0	105	4%	105	<b>1%</b>
<b>RF Microdevices</b>	0	0	86	3%	86	<b>1%</b>
<b>Anadigics</b>	0	0	77	3%	77	<b>1%</b>
<b>Mitsubishi</b>	71	1%	0	0%	71	<b>1%</b>
<b>Murata</b>	0	0	44	2%	44	<b>0%</b>
<b>others</b>	110	2%	114	4%	224	<b>2%</b>
<b>total</b>	<b>6200</b>	<b>100%</b>	<b>2922</b>	<b>100%</b>	<b>9122</b>	<b>100%</b>

Source: IDC, 2001

#### RELATIVE VALUATION, SEMICONDUCTOR AND PCB COMPANIES

	Curr	Price	Mkt cap. (m)	PE'01	PE'02	PE'03	P/S'01	P/S'02	P/S'03	PRICE PERFORMANCE				
										-1W	-1M	-6m	-12M	
SEMICONDUCTORS														
<b>Agere Systems</b>	U\$	5.3	3,855	-8.8	-132.5	33.1	1.7	1.2	n/a	-14%	-12%	2%	n.a.	
<b>Anadigics</b>	U\$	14.0	424	-9.2	-14.0	-87.4	5.0	4.7	3.1	-16%	-25%	-17%	-10%	
<b>Analog Devices</b>	U\$	45.1	16,327	74.0	43.0	n/a	8.9	7.7	n/a	-2%	3%	10%	-18%	
<b>Conexant</b>	U\$	14.2	3,613	-10.4	-48.9	n/a	3.9	3.2	n/a	-18%	5%	87%	-34%	
<b>Epcos</b>	E	56.0	3,657	23.1	33.7	19.6	1.9	2.0	1.7	-5%	-11%	-15%	-42%	
<b>Infineon</b>	E	23.5	16,251	-23.5	46.9	33.0	3.2	2.5	1.8	2%	4%	-33%	-47%	
<b>Motorola</b>	U\$	15.8	35,078	-49.3	175.1	30.3	1.2	1.1	1.0	-7%	-12%	20%	-19%	
<b>National Semicond.</b>	U\$	31.2	5,480	-31.8	115.4	24.1	3.8	3.1	2.6	-8%	-3%	19%	47%	
<b>Philips</b>	E	32.8	43,167	-30.94	49.0	17.8	1.3	1.3	1.2	1%	2%	13%	-18%	
<b>Qualcomm</b>	U\$	52.3	39,964	47.5	38.4	n/a	13.1	10.2	n/a	-9%	-16%	4%	-37%	
<b>STM</b>	U\$	32.1	28,503	23.8	64.3	n/a	3.9	3.2	n/a	0%	-9%	0%	-27%	
<b>Texas Instruments</b>	U\$	27.9	48,328	348.8	697.5	45.0	6.0	6.1	5.2	-13%	-15%	-6%	-42%	
<b>Median</b>				<b>-9.0</b>	<b>44.9</b>	<b>27.2</b>	<b>3.8</b>	<b>3.1</b>	<b>1.8</b>					
PCB														
<b>Aspocomp</b>	E	12.0	122	-9.6	24.5	10.0	0.5	0.5	0.4	-4%	-14%	-10%	-59%	
<b>AT&amp;S</b>	E	15.6	437	35.5	14.9	10.9	1.3	1.1	0.9	-6%	-8%	31%	-49%	
<b>Compaq</b>	TW	51.0	42,079	34.5	28.3	n/a	n/a	n/a	n/a	-2%	15%	-24%	-59%	
<b>Gold Circuit</b>	TW	12.3	4,808	6.3	5.3	n/a	n/a	n/a	n/a	-17%	21%	-31%	-39%	
<b>Unitech</b>	TW	16.9	1,719	8.0	7.5	n/a	n/a	n/a	n/a	-6%	13%	-32%	-26%	
<b>Unimicron</b>	TW	29.6	19,307	9.2	8.4	n/a	n/a	n/a	n/a	-19%	17%	-9%	-22%	
<b>Median</b>				<b>8.6</b>	<b>11.6</b>	<b>10.5</b>	<b>0.9</b>	<b>0.8</b>	<b>0.6</b>					

Source: Datastream, I/B/E/S

## Estimates and investment conclusions

We feel confident that valuations are again starting to be based on business fundamentals. Although we have not yet seen much hard evidence of a fundamental turnaround in handset demand, we see that the macroeconomic environment is improving as a result of heavy monetary actions. We are confident that the launch of new GPRS models in H1 2002, e.g. from Nokia, will give the needed boost to replacement cycles and sales.

Subscriber growth is less volatile and easier to estimate, but should consumer confidence and consequently consumption deteriorate, replacement sales could well come out disappointing, hitting estimated total shipments for 2002 severely.

Even if we see limited sequential growth, if any, for the sector members in the next few quarters, we feel that current valuations are focused on 2003. Although the first signs of an improvement are emerging, the lack of hard evidence of improving consumer behaviour makes us somewhat cautious about valuations in the short term.

QUARTERLY ESTIMATES								
Quarterly sales estimates	currency	Q4'01E	Q1'02E	Q2'02E	Q3'02E	Q4'02E	FY 2002	chg y/y
<b>NORDIC SUPPLIERS</b>								
<b>Nokia</b>	<b>mEUR</b>	<b>8665</b>	<b>7334</b>	<b>8230</b>	<b>8760</b>	<b>11348</b>	<b>35672</b>	<b>15%</b>
	qoq chg	23%	-15%	12%	6%	30%		
<b>Ericsson</b>	<b>mSEK</b>	<b>45850</b>	<b>45481</b>	<b>54263</b>	<b>49156</b>	<b>64960</b>	<b>213860</b>	<b>-6%</b>
	qoq chg	-16%	-1%	19%	-9%	32%		
<b>NORDIC SUB-SUPPLIERS</b>								
<b>Aspocomp</b>	<b>mEUR</b>	<b>56</b>	<b>54</b>	<b>55</b>	<b>61</b>	<b>72</b>	<b>242</b>	<b>8%</b>
	qoq chg	12%	-5%	2%	12%	18%		
<b>Comptel</b>	<b>mEUR</b>	<b>11</b>	<b>12</b>	<b>14</b>	<b>17</b>	<b>22</b>	<b>65</b>	<b>14%</b>
	qoq chg	-2%	7%	22%	20%	32%		
<b>Eimo</b>	<b>mEUR</b>	<b>56</b>	<b>49</b>	<b>54</b>	<b>65</b>	<b>89</b>	<b>258</b>	<b>75%</b>
	qoq chg	31%	-13%	10%	20%	37%		
<b>Elcoteq</b>	<b>mEUR</b>	<b>500</b>	<b>409</b>	<b>470</b>	<b>541</b>	<b>655</b>	<b>2076</b>	<b>12%</b>
	qoq chg	16%	-18%	15%	15%	21%		
<b>JOT Automation</b>	<b>mEUR</b>	<b>17</b>	<b>18</b>	<b>20</b>	<b>22</b>	<b>23</b>	<b>82</b>	<b>7%</b>
	qoq chg	-14%	5%	9%	9%	5%		
<b>Nolato</b>	<b>mSEK</b>	<b>589</b>	<b>583</b>	<b>573</b>	<b>609</b>	<b>668</b>	<b>2433</b>	<b>2%</b>
	qoq chg	6%	-1%	-2%	6%	10%		
<b>Perlos</b>	<b>mEUR</b>	<b>97</b>	<b>96</b>	<b>106</b>	<b>115</b>	<b>138</b>	<b>455</b>	<b>5%</b>
	qoq chg	17%	0%	9%	9%	20%		
<b>PMJ Automec</b>	<b>mEUR</b>	<b>9.3</b>	<b>10.1</b>	<b>11.1</b>	<b>14.8</b>	<b>20.0</b>	<b>56</b>	<b>4%</b>
	qoq chg	-16%	8%	10%	34%	35%		
<b>Average q/q for sub-suppliers</b>		<b>11%</b>	<b>-8%</b>	<b>6%</b>	<b>11%</b>	<b>17%</b>		<b>8%</b>

Source: Handelsbanken Investment Banking

Looking at sequential performance one should recognise the different seasonality in handset and infrastructure businesses. Typically, the strong infrastructure quarters are Q2 and Q4, while handsets are more tilted towards Q4.

We are positive on investing into this sector, as recent consumer confidence expectations and consumption statistics have finally shown first signs of slight improvement. Hence we expect the discounting of 2003 earnings to support a favourable share price performance. The general market outlook remains, however, cautious in the very near future.

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