

Who makes what

Antenna, Internal Antenna

Interplex Electronics
Tyco Electronics

Plastic Moulding

Nypro Forbes

Keypad

Sil-Kee Electronics

Connectors

Tyco Electronics
HiCal Electronics

Charger Assembly

Molex Electronics

Box-build Assembly/ Testing

XL Telecom

Graphics: ASHISH SAHI

the World's Handset

India is already an extremely attractive market for mobile handset companies. Now they are finding that it is a great manufacturing base as well. Anup Jayaram reports

YOU can't find too many Indian manufacturers who are competing head on with the Chinese — and looking happy about it. Naren Shah is one of the rare ones. Shah makes charger cable assemblies for Nokia. And he is doing it cheaper and better than the Chinese Nokia unit. Shah is the executive director of Molex India, which operates near Bangalore.

Over the last couple of years, Molex India has supplied 65 million pieces of charger cable assemblies to Nokia Finland for its high-end phones. It has also supplied chargers to Finnish mobile giant Nokia's plants in China and Brazil. Shah expects demand to keep increasing. But, this time round the demand is likely to come from mobile phones that will be made in India.

That's a sharp turnaround from mid-2004, when even thinking about making a mobile handset in India seemed a far-fetched dream. But, now it seems India is finally well on its way to become a big centre for mobile handset manufacturing. (Also See 'Birth Of A New Industry', *BW*, 6 September 2004).

If the plans announced by global majors are anything to go by, Made-in-India handsets could be flooding not just the Indian market, but the entire world by 2010.

It all started with the Finland-based electronic manufacturing service company Elcoteq announcing plans to roll out nearly 2 million handsets from Bangalore initially. The numbers will go up

**Making
it in
Manufacturing**

**MOBILE
HANDSETS**



CDMA handsets being assembled for Tata Indicom at XL Telecom in Hyderabad

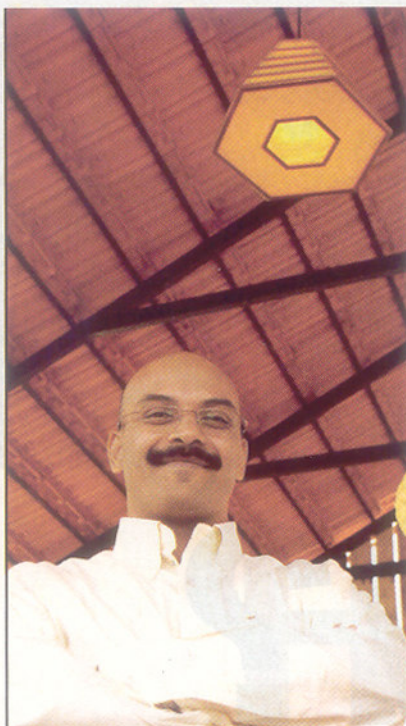
MUSTAFA QURRAISHI

Factory?

to 5 million handsets annually by 2010. Shortly afterwards, the Korean conglomerate LG announced that it will make 20 million mobile handsets — GSM as well as CDMA — annually, by 2010 at Pune. It would be pumping in almost \$60 million as its initial investment. The interesting part of the LG announcement was that roughly half of the handsets it planned to make in Pune would be exported to the Middle East and African markets. Meanwhile, Nokia announced that it planned to spend \$150 million over a four-year period to start making both GSM and CDMA handsets in India. The first of those are expected to roll off by end-2005.

BPL Telecom has already invested Rs 50 crore to assemble GSM phones at its Palakkad plant. It imports components from Ezze Mobile in South Korea. Hyderabad-based XL Telecom is assembling close to 10,000 CDMA handsets daily under the Kyocera brand. Others like Motorola are looking closely at options to start manufacturing in India. And Bangalore-based Quasar Innovations has emerged as the country's first virtual original design manufacturer.

This rush by global majors to manufacture handsets and components is expected to radically change the face of the \$10-billion Indian telecom industry.



Once all the plants are up and running, the handset manufacturing industry alone is expected to cross \$7 billion in turnover by 2010. And over the next couple of years, it is expected to pull in a total investment of over \$400 million.

The most aggressive plans in India are those of LG. The Korean company projects its mobile phone business to be \$3.5 billion in revenues by 2010 — or roughly half of the total Indian market. Look at it another way — if LG does reach its goals, the handsets business will overtake its consumer electronics and home appliances businesses, each of which are expected to be \$2.5 billion in revenues by that year.

So, what is driving this mad rush by global giants to manufacture their handsets in India? The answer: the sheer size of the Indian market, its fre-

netic growth rates, and above all, the fact that it conforms to global standards.

Consider each point one at a time. The Indian mobile market is expected to add around 20 million new subscribers in 2004. At an average price of Rs 5,000 a handset, the Indian mobile market is worth Rs 10,000 crore (\$2.22 billion) already. That's roughly the size of the colour TV market. But then, the CTV market is 22-years old while the mobile market reached that figure in just nine years. And it is still growing very fast.

In fact, the handset market is expected to grow at 35 per cent year-on-year on an average till 2010. In 2005, nearly 37 million handsets worth \$4.2 billion are likely to be sold in the country. That will make India the third largest mobile handset market, after China and the US. By 2008, handset sales are esti-

Designs on the global market

WHILE LG and Elcoteq are yet manufacture their phones in India, the Bangalore-based Quasar Innovations is set to become the first Indian player to design and make a mobile phone in India. By the first quarter of 2005, Quasar will be supplying higher mid-tier GSM / GPRS-based mobile phones designed and made in India to a European mobile operator. According to Ramakrishna Dutt, managing director, Quasar, these phones will have a special feature that has yet to be incorporated into any mobile. But Dutt refused to reveal what exactly it is because of the non-disclosure agreement with the operator. Quasar has lined up a series of designs for the operator.

Quasar is what is called a virtual original design manufacturer (VODM). Nearly a quarter of the 200 employees in the \$3-million company are involved in design. Says Dutt: "We do the entire ecosystem of a phone, from conception to manufacture, for anyone." Quasar does the hardware design, the product design, the radio frequency adapting and, finally, pro-

duces the phone through other companies. Quasar does not manufacture the phone. It provides the design and the components to another Bangalore-based company that will assemble the phones. In the first phase, many of the components for the phone will be imported. But, that is expected to change over the next year.

Quasar has just one customer now. That will change over the next few weeks. It is talking to a string of Indian and international companies to make phones for them. "The external looks of a phone accounts for just 2 per cent of the design. What really matters is the software design that is incorporated into the phone," says Dutt. This is the niche area that Quasar is targeting.

The operator to whom Quasar sells will decide the selling price of the phone, but Dutt says that it would be very reasonably priced. Quasar could just be the first of a series of mobile phone design houses in India. Designing and making mobile phones may soon be another feather in the cap of the Indian software engineer.

Ramakrishna Dutt, MD, Quasar Innovations

NAMAS BHOJANI

mated to touch 50 million, catapulting India as the second largest market.




It is this growth that global majors are hoping to cash in on. But they could still have continued to get their handsets manufactured outside India as they currently do. Except that a hitherto ignored variable, a policy decision by the Chinese government, has now altered the equation wholly in India's favour. China has been working on its own 3G standard, the TD-SCDMA. The Chinese government, by pushing this standard, hopes to save the country up to \$10 billion in import costs and expensive 3G royalties. But this would also mean that the handsets sold in China will not work on the standards followed by the rest of the world.

If handsets that cater to global standards cannot be sold in China, it also does not make sense to manufacture them there. Which explains why the global handset majors are setting up shop in the next big mobile handset market. A huge domestic demand also means economies of scale, which can be leveraged for exports.

Another advantage that India has is that China has imposed a 4 per cent value-added tax on mobile phones. Sure, that advantage will vapourise if the Chinese withdraw the tax, but as long as it exists, it works in India's favour. Also, almost all companies want to set up a base outside China as part of a de-risking strategy.

Aiding that rush to invest in manufacturing in India is the fact that the country already has the technology and the talent pool in place. That is because the handset value chain overlaps with other electronic items like consumer

Making mobiles in India

Company	Location	Volume	Investment
ELCOTEQ™	Bangalore	5 mn	\$25 mn
	Pune	20 mn	\$60 mn
NOKIA	Not known	NA	\$150 mn
	Palakkad	1 mn	\$10 mn
XL Telecom	Hyderabad	3 mn	NA
	Bangalore	NA	NA

Graphics: NEEPAJ TIWARI

electronics, computers, network equipment and auto electronics. India already has a reasonably strong manufacturing presence in these fields.

"We took a decision at the global level to make mobile phones in Korea, China, and now in India. Apart from the software skills, India also has a strong cadre of engineers, which is critical in such an operation," says K.R. Kim, managing director, LG Electronics India. LG makes 24 million handsets in Korea, while China and Brazil account for the balance 8 million. By 2010, LG could be producing the same number of handsets in India as it would in China.

Globally, mobile phone manufacturing involves seven different segments with varying technology and skill-sets. These are semiconductors or ICs, passive components, PCB fabrication, modular components, plastic parts, box-build assembly and testing. As things stand, there are companies in India that are already in a position to provide most of these components.

The mobile handset industry is like

the automobile industry. The coming of Elcoteq, LG and Nokia will do to the mobile manufacturing industry what the entry of Maruti did to automobile manufacturing and auto components in the early 1980s. Handset manufacturers usually localise production after 2-5 years, spawning a boom in component manufacturing.

In most mobile handsets, there are anything between 40-60 components. In China, almost all these are made locally. In India, the local companies can provide about 30 per cent of the components initially.

These can be supplied by the component suppliers to the electronic industry, most of whom are based in Bangalore. According to a study by international consultancy KPMG for the Indian Cellular Association, the technology used to make printed circuit boards (PCBs) by Flextronics, D-Link, Jabil Circuit and Celetron in India exceeds the requirements needed to manufacture handset PCBs.

Over the next couple of years, Bangalore could emerge as not only the software hub, but also as the hardware capital of the country. All that the components manufacturers need to do, when they start getting orders, is install additional machines to cater to the higher volumes.

"The machines are the same, but it is culture that has to change. That's because it has high volumes, and so needs automation," says Ravindra Vashist, sales manager India, Nypro Forbes. The company does injection moulding work for Gillette and Kodak, and has got enquiries from LG and Elcoteq for manufacturing the outer casing of a handset.

Global handset-manufacturing bases

Country	Volume	Companies
CHINA	170 mn	Nokia, Motorola, Bird, Keijan, LG, Samsung
US	60 mn	Nokia, Motorola, Samsung
FINLAND	40 mn	Nokia, Elcoteq
KOREA	45 mn	LG, Samsung
BRAZIL	25 mn	Nokia, LG
JAPAN	63 mn	Kyocera, Sanyo, Sony