

20 June 2005

Sector: Defence

## Defence

### Gunning for growth



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India's ambitions of becoming a regional Super Power has propelled tremendous growth opportunities for several private sector companies engaged in defence production. The continuous emphasis of the Indian government on achieving self sufficiency in the defence sector has resulted in increasing defence spending and players in the private sector have emerged as the major beneficiaries. This can be proved by the government's encouragement given to the private sector for developing key components for the defence sector. In this context Astra Microwave Products and Premier Explosives are companies we prefer in the defence sector. We initiate coverage on both the companies with a BUY.

**Drive for regional dominance:** As India aspires to become regional super power, defence is being accorded prime importance. To achieve this goal India is equipping its military with modern armaments, missiles and nuclear weapons which has led to an increase in defence capital expenditure.

**Increasing capital expenditure on defence:** The Indian government's capital expenditure on defence has doubled over the past 5 years from 0.6% of GDP for FY2000 to 1% for FY2006. In the quest of achieving self sufficiency, the R&D expenditure on defence has also seen an increase of 20% in FY2006. The Indian government is seeking to increase the indigenization of the defence capital expenditure through more private sector participation.

**Self-sufficiency motive to benefit private sector:** To spur the process of indigenization, a synergy between the public and private sector is being encouraged. Private sector's role has been extended from being a supplier of raw-materials and subsystems to becoming a partner in the entire development process. Private participation is being looked at to translate indigenous technology into commercially viable products for the defence sector. We believe this will augment business prospects for the private sector companies in this sector.

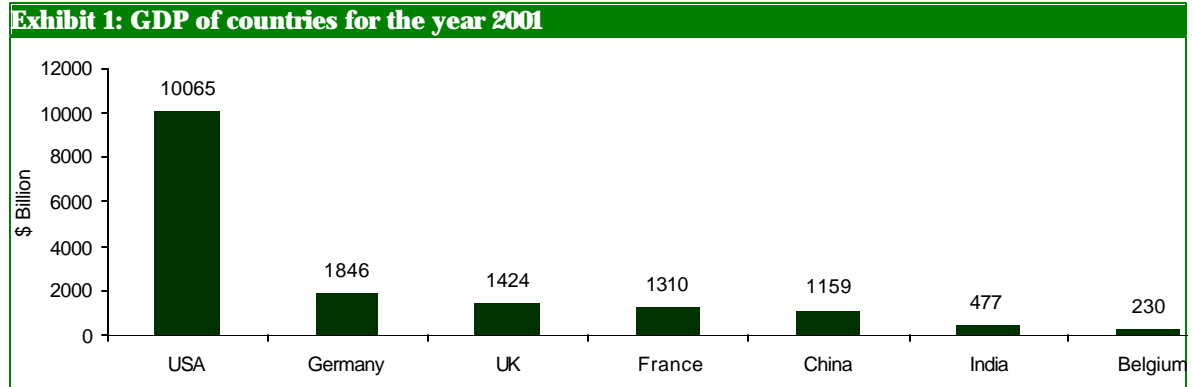
**The missile and space program-an additional benefit:** We understand that space technology has a strong link to missile technology. And since some private sector companies are involved in the Indian missile programs, the increasing capital expenditure on space technology from Rs2.83bn in FY2003 to Rs6.08bn in FY2006 will benefit these companies.

We have identified companies in the private sector which are involved in production for the defence sector and are likely to benefit from the indigenization effort of the Ministry of Defence. We are initiating coverage on Astra Microwave Products Limited and Premier Explosives Limited.

Preferred Companies		
	Astra Microwave Products Ltd.	Premier Explosives Ltd.
Recommendation	BUY	BUY
Current Price Rs.	1300	160
Target Price Rs.	1740	235

### India's ambition of being a regional Super Power

India has been nurturing ambitions of becoming a great power, and has been actively seeking international co-operation for getting a permanent membership in the United Nation's Security Council. But to be perceived as a Great Power, India has to be considered as a strong, economic or a military power. Although India's GDP remains small as compared with other economically advanced countries (see exhibit 1), India's military, especially its army remains significant by global standards.



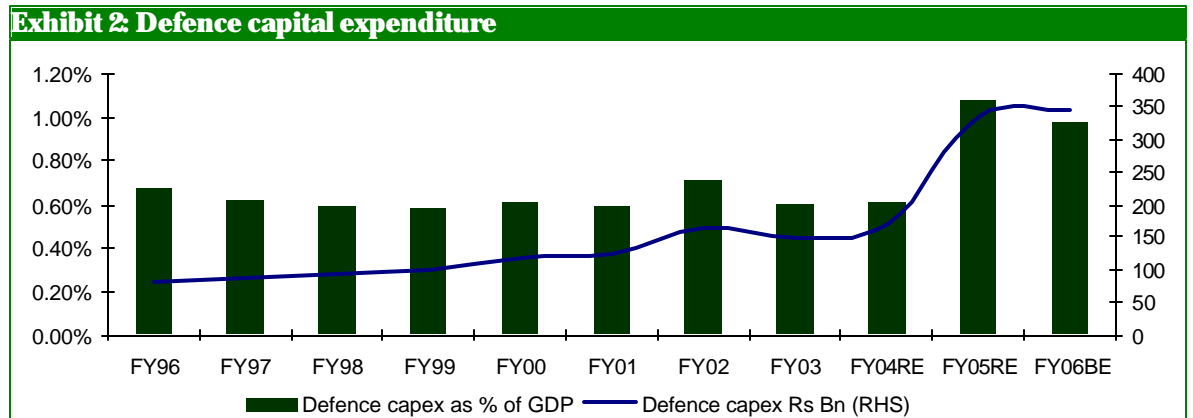
Source: Centre for Monitoring the Indian Economy

To be considered a military superpower, a nation must not only have a large army and sophisticated, conventional arms but also nuclear weapons and the delivery systems for long-range deployment. While modern, conventional weapons can be purchased from advanced countries, nuclear and missile technology is zealously protected by a small exclusive club of nations. Therefore, the development of nuclear and missile weapons has to be an indigenous effort.

The need to develop nuclear and missile technology by India is not merely as a reaction to Pakistan and China but also as a possible deterrent against any aggressive, global super power policy towards India. In particular, the American-led intervention and occupation of Iraq has disturbing, long-term consequences for India. It has been argued that if Iraq had possessed weapons of mass destruction and long-range ballistic missiles, it would have deterred military intervention by a superpower. It is in the context of protecting India's sovereignty and being perceived as a Great Power that India's military development has to be viewed, especially its nuclear, missile and space programs.

### Increasing capital expenditure on defence

To modernize the Indian military, the government has increased capital expenditure on defence. The defence capital expenditure after remaining relatively stagnant at 0.6% of GDP from FY1997 increased to around 1% of GDP in FY2005 and FY2006. The budgeted capital expenditure on defence has more than doubled over the past 5 years, to Rs. 343.75 bn in 2006 from Rs.123.84 bn in 2001.

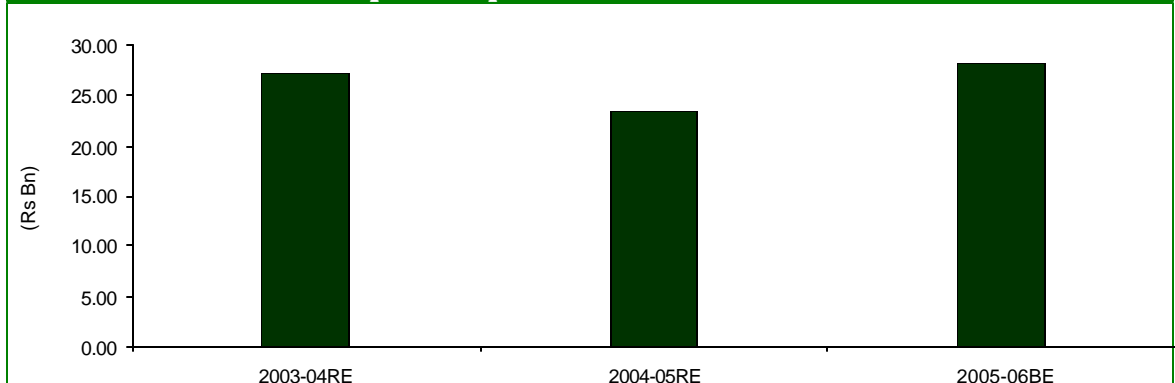


Source: Union Budget

## Defence R&D on the upswing

Though a large part of this capital expenditure is for importing large, defence items such as an aircraft carrier for the navy and planes for the air force, India has also been making considerable investments in defence research and development (R&D) to achieve self sufficiency. The goal of self sufficiency is driven by the fact that countries like India are forbidden from importing strategic weapons like long-range missiles and nuclear weapons. India's defence R&D for FY2006 is budgeted at Rs28.24bn. The amount of defence R&D is significant when compared with the R&D of 2,031 private companies compiled by the Reserve Bank of India at Rs8.1bn in FY2003 (latest available). Although, the years are not comparable defence R&D in India is 3.4x the R&D in the private corporate sector. In our opinion, the defence R&D expenditure would be understated as we understand that expenditure for India's nuclear defence and missile programs are classified under other ministries e.g. Space, Nuclear Power and Science and Technology. Never the less the importance of defence R&D is visible in the 20% increase for FY2006.

**Exhibit 3 Research & development expenditure on defence**



Source: Union Budget

## Increasing private sector participation

Defence was an area specifically reserved for the public sector. The role of the private sector was limited to supplying raw materials, components and subsystems. But, lately this has undergone a change. The role of the private enterprise has been extended to becoming a partner in the manufacture of complete defence equipment systems. The Defence Minister, Mr. Pranab Mukherjee, is of the opinion that the Indian industry should attempt to pick up defence production orders through increased public-private participation, and suggests that Rs.40 Bn of the Rs.343 Bn allocated for capital expenditure on defence will be available for indigenous production. (Source: Business Line - 9th June '05)

The change has also come about in the quest of achieving self-reliance in this crucial sector which has become critical due to sanctions imposed after the nuclear tests conducted by India at Pokhran in 1998. Efforts are being made to indigenize defence equipment wherever technologically feasible and economically viable. Indigenization will have several other benefits. One of them will be cost effectiveness due to the availability of technology in India at a significantly lower cost and more importantly it allows India to develop critical defence systems which the developed nations do not want to export. The large expenditure incurred for defence coupled with the goal of indigenization will provide a significant growth in business for private sector companies in the defence segment.

Indian defence labs in the government sector like the Defence Research and Development Organization (DRDO) and Defence Electronics Research Laboratory (DLRL) specialize mainly in system integration. The defence labs have been at the forefront of many of the indigenous defence products developed by India. They invite public and private sector companies to supply the products, while the integration process is undertaken by them. Critics of India's indigenous defence program claim that many of the products developed are through reverse engineering and integrating

imported subsystems, therefore, the end products though indigenous, are modeled on foreign counter parts. Despite such claims, the private sector is increasingly participating in developing India's defence programs.

The increasing private sector participation in defence has also come about on account of the inability of the government defence labs to retain talent. Many of the scientists and engineers from the defence labs have either left for lucrative foreign postings or accepted jobs in the private sector. A few entrepreneurial minded individuals have set up their own companies, catering to the defence labs, like Astra Microwave Products Ltd. and Avantel Softech.Ltd. India's defence R&D model has evolved from being totally in the government sector to a more viable model of government and private sector co-operation. Synergy between the national laboratories and industry will translate indigenous technologies into commercially viable products.

### Private participation in the missile program

The Integrated Guided Missile Development Program (IGMDP) was initiated in 1983 with the aim of achieving self sufficiency in missile development and production. Self sufficiency in missile technology became more important after the Missile Technology Control Regime (MTCR) was formed by nations like USA, UK, Italy, France and Germany in 1987. Presently, there are thirty-four partner nations. The MTCR was signed in order to reduce the proliferation of unarmed delivery systems capable of delivering weapons of mass destruction. It imposes export restrictions, whereby the countries that are a part of this association are restricted from exporting these delivery systems. Thus making the task of countries who want to achieve the capability to acquire and produce these delivery systems more difficult.

The IGMDP comprises of 5 core missile programs; Prithvi, Agni, Akash, Trishul and Nag(see exhibit 4). The R&D on these missile programs is undertaken solely by the Indian defence laboratories with the help of public sector defence companies.

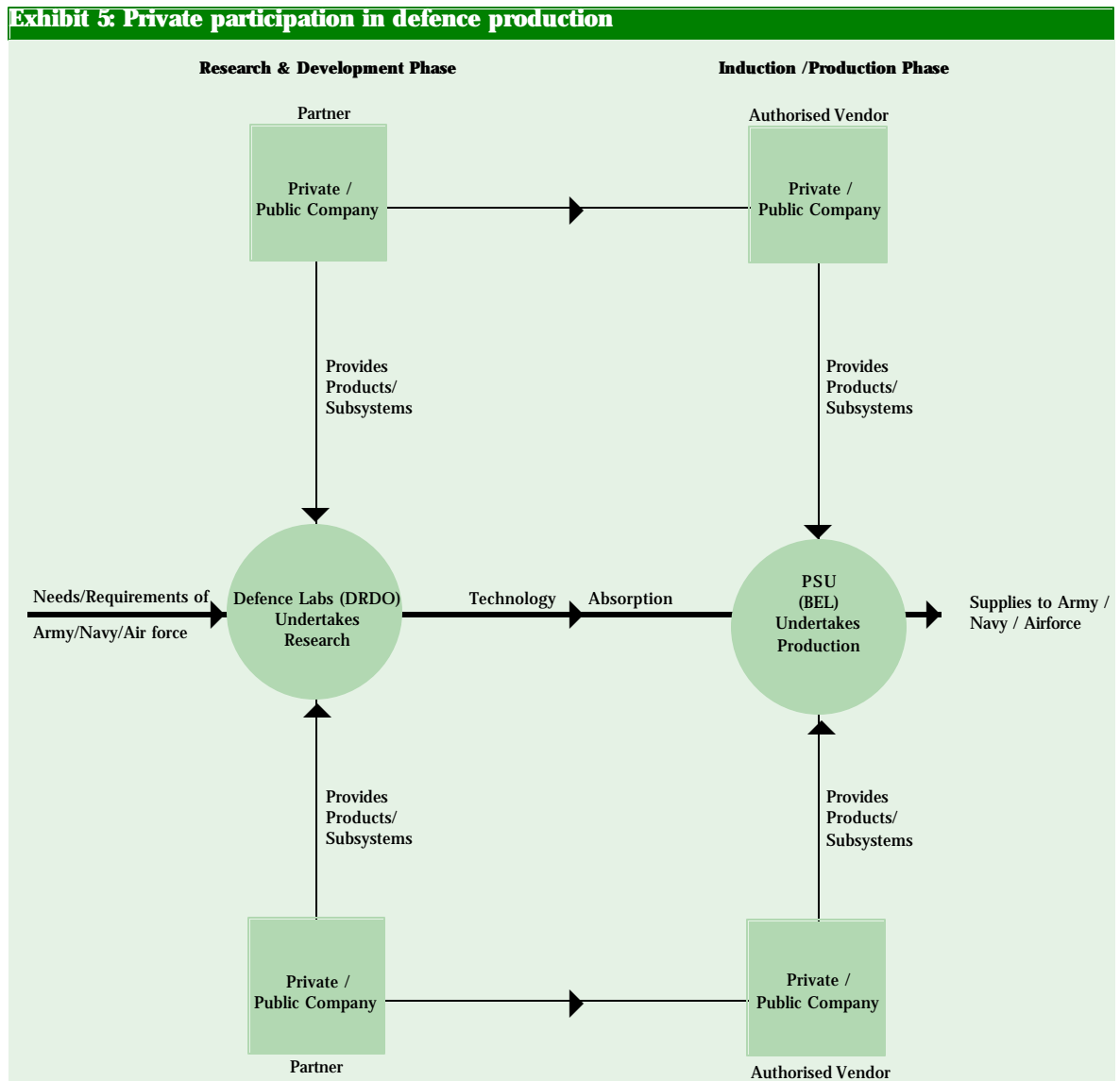
Exhibit 4: Integrated Guided Missile Development Program				
Missile	Description	Range (Approx.)	Missile Status	Propellant
Prithvi I	Short range, Surface to Surface Missile	150Km	Operational	Liquid
Prithvi II	Short range, Surface to Surface Missile	250Km	Operational	Liquid
Prithvi III	Short range, Surface to Surface Missile	350Km	Operational	Solid
Agni I	Short range ballistic Missile	850Km	Operational	Solid
Agni II	Intermediate range Ballistic Missile	3300-4450Km	Operational	Solid
Agni II-AT	Intermediate range Ballistic Missile	3900Km	R&D	Solid
Agni III	Intercontinental Ballistic Missile	5500Km	R&D	Solid
Agni IV	Intercontinental Ballistic Missile	>5500km	R&D	Solid
Akash	Medium range Surface to Air Missile	27Km	User Trials	Solid
Trishul	Short range Surface to Air & Sea to Air Missile	9Km	R&D	Solid
Nag	Anti-tank Guided Missile	-	User trials	Solid

Source: KSBL Research

Since 1995 private participation has been encouraged in the IGMDP. The defence laboratories invite companies in the private and public sector to become partners from the R&D phase. This partnership is to provide certain products and subsystems which are required for the production of missiles. Based on technology and prices a company is selected and made a partner for a particular product/subsystem. These partners work in close association with the defence laboratories to match their requirements. They produce prototypes for the defence laboratories throughout the R&D phase.

Once the missile gets approved, it reaches the induction phase. This is the phase in which production takes place to supply these missiles to the military. This production is undertaken by Bharat Dynamics Ltd. (BDL) a public sector company. Technology transfer takes place from the defence laboratories to BDL.

The partners that provided products/subsystems in the R&D phase to the labs now become approved vendors to the PSU producing the missile and supply the subsystem to the PSU during the missile induction phase. In this phase, depending on the orders from the armed forces, the production of missiles takes place in significant quantities. Therefore all the companies providing prototypes in the R&D phase receive large orders. The same process is followed for producing other defence systems as well (see exhibit 5).



Source: KSBL Research

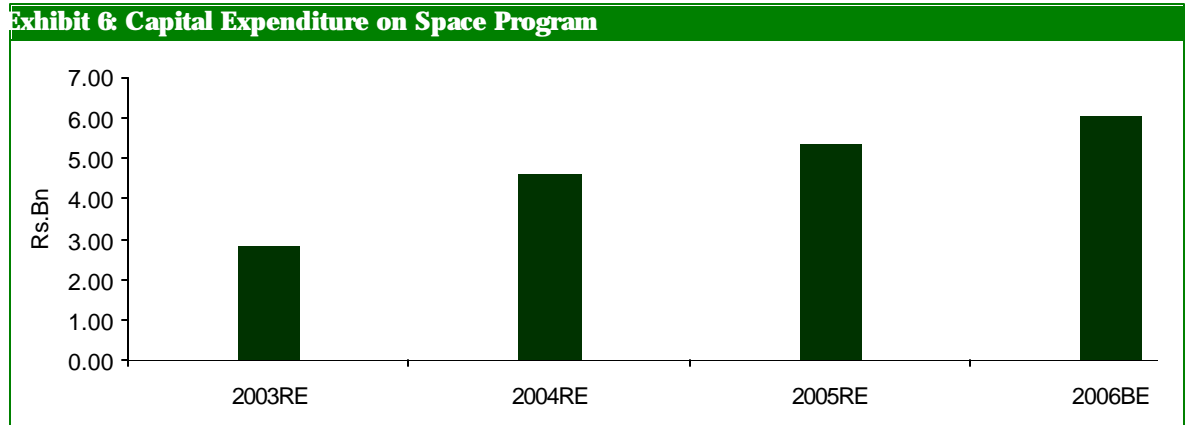
### **Brahmos: the Indo-Russian joint venture**

The latest entrant to the Indian Missile program is BrahMos, an anti-ship cruise missile which has been developed under a joint venture between the DRDO and the Federal State Unitary Enterprise NPO Mashinostroyenia (NPOM) from Russia in 1998. The Russian collaboration for Brahmas does not contravene the MTCR since the range of Brahmas falls short of the limit established by the MTCR.

The BrahMos missile has a range of 300km and a conventional (non nuclear) payload of 300kg. This missile has been primarily developed for the Indian and Russian navy but can be employed effectively by the three services. We understand that 12 private sector companies have been involved in the development of BrahMos.

**Link between the government's space and missile program**

On the face of it, it seems that the Indian space program bears no connection with India's defence requirements and advances made in rocket and satellite technology will not be translated into enhanced military capabilities. This distinction has been primarily maintained due to the space program being a peace program and because defence programs attract certain impositions. But looking at it closely, a connection between these two programs can be established as Indian space technology has manifold applications in the Indian Missile Programs. The technology used for Space Launch Vehicles (SLV) Polar Satellite Launch Vehicles (PSLV) and Geosynchronous Satellite Launch Vehicle (GSLV) can be modified for missile development. The shift of Dr.A.P.J.Abdul Kalam, the current President of India from being in charge of the SLV-3 program to being in charge of the Integrated Guided Missile Development Program (IGMDP) in June 1982 further clarifies the connection. Therefore, another booster to the Indian Missile Program could be the government's capital expenditure on space which has been increasing steadily over the years from Rs.2.83Bn in 2003 to Rs.6.08Bn in 2006. Therefore private sector companies having operations in the space segment may also benefit from this.



Source: Union Budget

Sector: Defence

## Astra Microwave Products(Rs1353)

BUY

**Defence & space all the way**

**Target Price Rs1740**

Astra Microwave Products Limited (AMPL) supplies components and subsystems for wireless applications. It has presence in defence, space and telecom. The company's prospects from its defence and space ventures look very promising. The company is expected to see a healthy top line growth of 68% in FY06 and 19% in FY07. This will be accompanied by a growth in net profits of 72% and 26% respectively. The company enjoys very high EBIDTA margins which will remain in the region of 42% for the next couple of years. We rate a BUY on the stock with a price target of Rs1740.

**Defence and space to drive sales:** AMPL is one of the few private sector companies engaged in designing and manufacturing of RF(Radio Frequency) and microwave super components and subsystems used in defence and space applications. Within defence, the Battle Field Surveillance Radar (BFSR) is the driver of growth in FY2006. 40% of AMPL's revenues will come from orders received for the BFSR in FY2006.

The contribution of AMPL's space venture to its top line is on the increase from 2% in FY2005 to 37% in FY2007. This is likely with the expected launch of RISAT, Radar Imaging Satellite due in 2008. AMPL supplies the T/R Module for this satellite. AMPL has also signed an MOU with the commercial arm of the Department of Space for the production and supply of the Automatic Weather Station (AWS) to be deployed in various parts of the country. The AWS is a data collection platform for meteorological application. Space again is a high margin business due to technology involved. This will contribute to the high margins enjoyed by AMPL.

**The missile bonanza:** AMPL has been a partner in the development process for the Akash and Trishul Missiles. It supplies 3 critical subsystems for these missiles. Akash is due for induction by December 2005. If this induction happens AMPL is set to see exponential increase in orders for these subsystems from FY2007 onwards. In the induction phase the orders for these subsystems will increase ten fold. We have not factored this event into our projections. The induction of Akash will lead to an upward revision of our EPS target by Rs12 for FY07

**Change in composition of revenues to keep margins firm:** The total contribution of defence and space to AMPL's revenue will increase from 64% in FY05 to 81% in FY07. These will replace revenues from AMPL's telecom business. The margins in defence and space being higher than those from telecom will keep margins for AMPL firm at 42%

**Valuations-driving growth:** We expect the strong EPS growth of 72% in FY06 and 26% in FY07. The stock trades at a PE/Growth of 0.52x FY06 and 0.41x FY07. The RoE and RoCE for the company are strong with the RoE at 57% in FY06 and 48% in FY07 and the RoCE at 60% in FY06 and 53% in FY07. We expect a 29% upside to this stock to Rs1,740.

### Astra Microwave

		Y/E Mar Rsmn	FY2003	FY2004	FY2005	FY2006E	FY2007E
Reuters/Bloomberg Code	ASTM.BO/ASTM@IN	Net sales	205.0	348.7	652.3	1097.7	1311.0
Market cap. (Rsmn)	7186.1	EBITDA	66.0	124.1	303.2	457.7	548.3
Market cap. (US\$m)	167.1	Net profit	44.0	75.0	170.4	292.8	368.1
Shares outstanding (mn)	5.3	EPS (Rs)	8.7	14.2	32.0	55.1	69.3
52-week High/Low (Rs)	1,422/283.5	EPS growth (%)	-6.6	63.1	125.8	72.3	25.7
		EBITDA margin (%)	32.0	35.6	46.5	41.7	41.8
Major share holders (%)		PER (x)	155.7	95.5	42.3	24.5	19.5
Promoter/Majority	32.5	P/BV (x)	36.0	31.8	18.2	11.4	7.9
FII's	7.0	Dividend yield (%)	0.2	0.2	0.4	0.8	1.2
Others	26.6	RoCE (%)	27.0	30.0	57.0	60.0	53.0
Public	33.9	RoE (%)	21.0	31.0	52.0	57.0	48.0

Source: Company and Karvy Estimates

## **Investment Positives**

### **Defence to be the major contributor**

Being one of the few private sector company's in the field of designing and manufacturing RF and Microwave products for defence applications, the major portion of AMPL's revenues come from this stream. AMPL provide subsystems for various purposes like missile application, radar application, electronic warfare and defence communication. The company get associated with various defence laboratories right from the development stage for certain products. Exponential growth in business volume is seen when a product gets approved and is taken up for production.

### **Radar application-on the drivers seat in FY2006**

AMPL was involved in the product development of the Battle Field Surveillance Radar (BFSR). This is a man portable e-surveillance sensor which provides continuous electronic surveillance of India's borders. LRDE was the defence laboratory which did the product development and AMPL provided the RF front end subsystem. It took 24 months to develop this radar. Besides the army, the Border Security Force and Coast Guards are potential users for this radar. This radar got inducted in 2004 after which BEL is undertaking its production. Once this application reaches this phase, production takes place in large numbers to service the needs of the armed forces. AMPL received an order for 1,000 subsystems, for the BFSR of which 400 were supplied in FY2005 and the remaining will be supplied in FY2006. BEL has received orders from Indonesia and Sudan for this radar for which AMPL in turn will receive further orders for the subsystem in the future.

### **Electronic warfare-supplementing revenues**

AMPL supplies Electronic Digital Log Video Amplifier (EDLVA) to BEL which is undertaking the production of Electronic Warfare Applications. EDLVA is the super component used in the production of Electronic Warfare Application. This application was developed by DRDL (Defence Research & Development Laboratory).and the technology was then transferred to BEL. This will be a steady contributor to AMPL's defence revenue.

### **The big trigger-Akash missile**

The company has been involved in product development of 2 missiles, Akash & Trishul. These 2 missiles are a part of the Integrated Missile Program. Akash is a medium range surface to air missile with a range of 25km, while Trishul is a short range sea to air missile.with a range of 9km. The two laboratories undertaking product development for these 2 missiles are DLRL (Defence Electronics Research Laboratory) & RCI (Research Centre Imarat). AMPL supplies 3 critical subsystems for these missiles.

During the product development phase, the requirement for these subsystems is around 10-15 per year for each of the 2 missiles. When a missile gets approved for production i.e. in the induction phase, the requirement for these subsystems goes up to around 100-150 per year for the next 10 years.

Although Akash is likely to get inducted between December 2005 and March 2006, we have not factored this event into our earnings projections. The successful induction of Akash will revise our earnings estimates for AMPL upwards. Production of Akash will be undertaken by Bharat Dynamics Ltd. (BDL) All the partners involved in the product development phase will become approved vendors to BDL. The EPS of FY07 will be revised upwards by Rs12 and the revenues from this induction will continue to be strong for the next ten years.

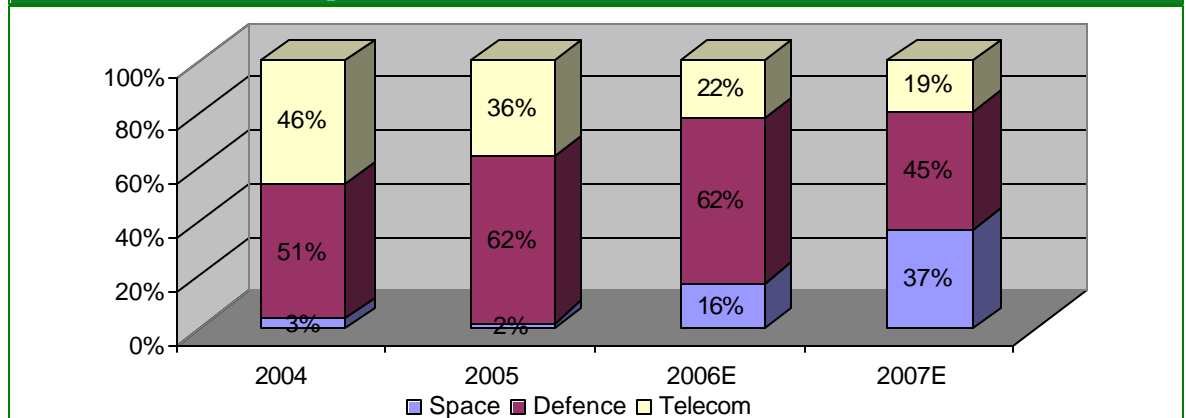


### Space-propelling revenues

We expect revenues from space to spur sales by showing an increase of 167% in FY07 over FY06. It will contribute to 37% of the total turnover in FY07. This is on account of the T/R (Transmit/Receipt) module which AMPL supplies for a satellite called RISAT (Radar Imaging Satellite). This is the first satellite based on microwave electronics. Work on developing this satellite is being undertaken at ISRO, Bangalore. The main purpose of RISAT is to augment the country's operational remote sensing program by enhancing agricultural and disaster related applications. The cost of developing this satellite is estimated to be Rs.3500 million. The T/R module supplied by AMPL enables communication from ground station to the satellite and back. RISAT will get launched in 2008. AMPL received an order for 700 subsystems. The execution will happen over FY06 and FY07.

AMPL has also signed an agreement with Antrix Corporation, the commercial arm of Department of Space for the production and supply of AWS to be deployed in various parts of the country. The AWS was developed by ISRO and AMPL was involved in this development. The AWS is a data collection platform used to continuously record weather data like temperature, humidity, wind speed etc from different locations including remote areas. This data collected can be relayed to ISRO's INSAT satellites.

**Exhibit 7: Revenue breakup**



Source: KSBL Research

### Margins exhibit strength as telecom takes a backseat

With defence and space driving revenues the contribution of telecom to the top line will decline from 36% in FY05 to 19% in FY07. AMPL has been in the telecom business ever since inception. Its products find application in Cellular Communication & VSAT. Within cellular communication, they have bi-directional amplifiers, jammers, & filters. These products are supplied to telecom providers. The competition in this segment is increasing from domestic and other Asian companies which have had an adverse impact on margins in this segment. Therefore with space and defence taking a front seat, the company's margins will be strong as margins from defence & space are both above 45%. A decline in the share of defence as a percentage of revenues will be seen in FY2007 as space revenues will speed up to garner a significant share of 37%. Margins will remain strong with defence & space driving revenues translating into strong EPS growth for the next two fiscals.

### Promoters having defence background

The company was founded in 1991 by 3 people who have prior experience in Defence & Space applications- Mr. Malla Reddy, the MD has 10 years of experience with ISRO (Indian Space & Research Organization) & DRDO (Defence Research & Development Organization); Mr. PA Chitrakar, the COO of the company was with DLRL (Defence Electronics Research Laboratory) for 22 years; Mrs. C. Prameelamma, has 23 years experience with LRDE (Electrical and Radar Development Establishment) DLRL. The promoters have exhibited prudent actions by starting with telecom applications & gradually venturing into defence application in the year 1995 & Space application in the year 2000.

### Entry barriers

AMPL's business is in the crucial sector of defence, where there are several entry barriers. The company has been involved with the defence labs right from the inception stage for many products and through out the R&D stage. It is difficult for rival companies to develop and get approvals from the defence labs for these products. Besides, it is not easy for any company to get access to this sector as strong relationships are required to be built over the years. The promoters, being from this sector have the required technical expertise, in-depth knowledge of the sector and the relationships

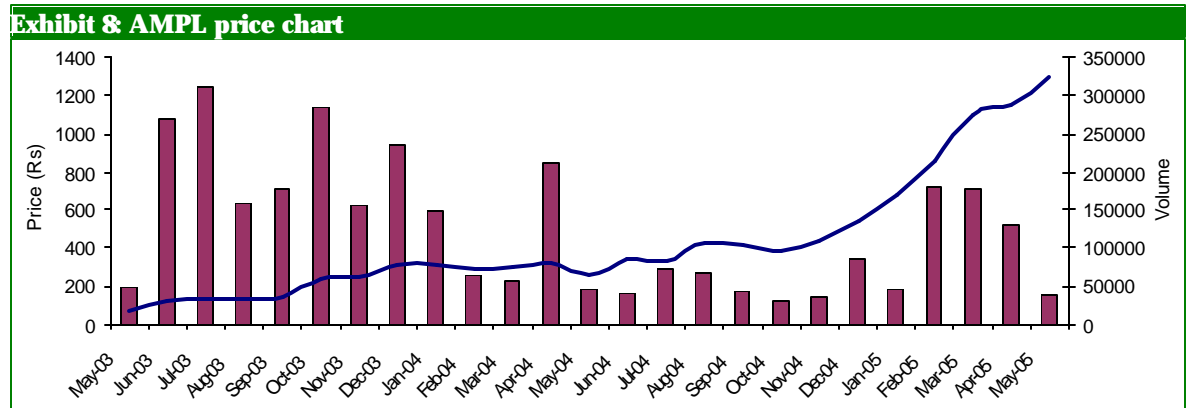
### Concerns

In defence there is a lack of transparency on account of the secrecy associated with the sector. Due to which information on product development and induction by the armed forces may not be timely. The secrecy in the defence sector also results in unsavory business practices. Although the sector has been opened for private participation, considerable government regulations still exist.

A major technology failure in the subsystems during the R&D phase could hamper prospects for AMPL.

### Valuations

We are initiating coverage on the stock with a BUY rating with a price target of Rs1,740. We expect an EPS growth of 72% in FY2006 & 26% in FY2007. The Return on Equity has increased from 31% in FY2004 to 52% in FY2005 and will remain strong at 57% & 48% in FY06 and FY07 respectively. The RoCE will also remain strong at 60% in FY06 and 53% in FY07. The stock trades at a PE/Growth of 0.52x FY06 & 0.41x FY07. The valuations look attractive looking at the growth prospects from its space & defence operations.



Source: C-Line

### Profit & loss statement

Rsmn	FY2003	FY2004	FY2005	FY2006E	FY2007E
Net sales	205	349	652	1,098	1,311
<i>% growth</i>	<i>29</i>	<i>70</i>	<i>87</i>	<i>68</i>	<i>19</i>
Raw material	87	146	258	450	531
Staff	27	46	52	69	97
Others	21	32	40	121	134
Deffered revenue expenditure	5	0			
Total Expenditure	139	225	349	640	763
EBITDA	66	124	303	458	548
<i>% growth</i>	<i>19</i>	<i>88</i>	<i>144</i>	<i>51</i>	<i>20</i>
EBITDA margin (%)	32	36	46	42	42
Other income	7	6	3	16	20
Interest	5	10	13	14	9
Gross profit	68	119	294	460	559
<i>% growth</i>	<i>20</i>	<i>76</i>	<i>146</i>	<i>57</i>	<i>22</i>
Depreciation	6	37	55	61	58
Profit before tax	62	82	239	398	501
<i>% growth</i>	<i>17</i>	<i>33</i>	<i>191</i>	<i>67</i>	<i>26</i>
Tax	18	7	69	106	133
Effective tax rate (%)	29	9	29	27	27
Net profit	44	75	170	293	368
<i>% growth</i>	<i>22</i>	<i>71</i>	<i>127</i>	<i>72</i>	<i>26</i>
Reported net profit	44	75	170	293	368
<i>% growth</i>	<i>22</i>	<i>71</i>	<i>127</i>	<i>72</i>	<i>26</i>
EPS (Rs)	9	14	32	55	69
<i>% growth</i>	<i>-7</i>	<i>63</i>	<i>126</i>	<i>72</i>	<i>26</i>
DPS (Rs)	2.4	3	5	10	15
Payout (%)	28	21	16	18	22

### Ratio analysis

	FY2003	FY2004	FY2005E	FY2006E	FY2007E
RoCE (%)	24	26	48	48	48
RoE (%)	19	29	43	47	41
Debt/Equity (x)	0.2	0.4	0.3	0.4	0.2
Interest cover (x)	15	9	20	30	56
RM/Sales (%)	42	42	40	41	41
Staff/Sales (%)	13	13	8	6	7
Others/Sales (%)	10	9	6	11	10

### Balance sheet

Rsmn	FY2003	FY2004	FY2005E	FY2006E	FY2007E
Equity	51	53	53	53	53
Reserves	181	202	343	576	854
Share options	2	0	0	0	0
Net worth	232	255	396	629	907
Short-term loans	22	45	62	109	63
Long-term loans	21	50	68	122	88
Total loans	43	95	130	231	151
<b>Liabilities</b>	<b>275</b>	<b>351</b>	<b>526</b>	<b>860</b>	<b>1058</b>
Gross block	123	252	352	532	572
Depreciation	24	93	148	209	267
Net block	99	159	204	323	305
Capital work-in-progress	12	0			
Long-term investments	3	4	4	20	40
Inventories	44	81	130	252	315
Debtors	102	163	307	516	629
Cash	51	23	31	14	92
Other current assets	47	39	90	154	197
Total current assets	244	306	559	937	1233
Creditors	38	78	131	230	265
Other current liabilities	1	1	1	3	4
Provisions	44	40	108	188	250
Total current liabilities	82	119	241	420	519
Net current assets	161	188	318	517	713
<b>Total assets</b>	<b>275</b>	<b>351</b>	<b>526</b>	<b>860</b>	<b>1058</b>

### Cash flow statement

Rsmn	FY2003	FY2004	FY2005E	FY2006E	FY2007E
EBIT	60	87	249	396	490
(Inc./Dec) in working capital	-42	-53	-122	-216	-119
Cash flow from operations	18	34	126	180	371
Other income	7	6	3	16	20
Depreciation	6	37	55	61	58
Interest paid (-)	-5	-10	-13	-14	-9
Tax paid (-)	-18	-7	-69	-106	-133
Deferred tax	0	0	0	0	0
Miscellaneous expenditure	-2	0			
Dividends paid (-)	-14	-18	-30	-60	-90
Net cash from operations	-8	41	73	78	217
Capital expenditure (-)	-48	-116	-100	-180	-40
Net cash after capex	-56	-76	-27	-102	177
Inc./(Dec.) in short-term borrowing	18	23	17	47	-46
Inc./(dec.) in long-term borrowing	10	29	18	54	-34
Inc./(dec.) in borrowings	27	52	35	101	-80
Inc./(Dec.) in Investments	1	-2	0	-16	-20
Equity issue/(Buyback)	0	3	0	0	0
Cash from financial activities	29	53	35	84	-100
Others	0	-1	0	0	0
Opening cash	69	51	23	31	14
Closing cash	51	23	31	14	92
Change in cash	-18	-27	8	-17	77

**Sector: Defence****Premier Explosives(Rs159)****Propelling growth****BUY****Target Price Rs235**

Premier Explosives, based in Secunderabad is the only company in the private sector which has been authorized to produce and supply solid and composite propellant for the defence programs undertaken by the defence laboratories of India. This will be a very healthy source of additional income to supplement their current business of Industrial explosives and Mushroom production. The revenues from propellants will come in from FY2006 onwards. We expect an expansion in top line by 39% in FY2006 and 25% in FY2007. Defence production, being a high margin game, will significantly strengthen margins to 16.8% in FY2006 and 17.8% in FY2007 from the current levels of 8% in FY2005. Increasing private sector participation in the defence sector translates into strong growth in EPS of 195% in FY2006 and 39% in FY2007. We recommend a BUY on this stock.

**Defence propellants - the centre of attraction:** Being the sole supplier of solid propellant in the private sector, revenues from this stream will spur growth in top line. Four out of the five Programs in the IGDMP require solid propellant. This will also contribute to higher margins for the company. The company made the first dispatch of propellants in late March 2005. Here on healthy growth is expected.

**Price increase due for industrial explosives:** Intense competition in this segment has kept prices under pressure over the past few years. The Explosives Manufacturers Association of India has been activated this year in quest of a price increase. Therefore prices have been revised upwards from March 2005. Firm prices, coupled with increase in sales of high value explosives would improve performance in this division.

**Mushroom segment - recently revived:** The mushroom project taken up in 1996, was a drain on the company due to the high rate of interest on loans for the project. The project has broken even in FY2004 and is presently profitable. With the repayment of the high interest rate loans in FY2005, the mushroom division will cease to be a drain on the company and will henceforth contribute to the bottomline.

**Low cost debt to push profitability:** Interest costs are likely to fall from Rs.21 Million in FY2004 to Rs16.8 million in FY2007, on account of repayment of old high cost debt at an interest rate of 17% to 20% taken to fund the mushroom project. The debt on the books is at current interest rate of approximately 10%. This will enhance profitability for the company.

**Valuations indicating growth:** Extremely strong EPS growth of 195% is expected in FY2006 and 39% in FY2007. At the current levels of Rs159, the stock trades at a PE/Growth of 0.17x FY2006 and 0.12x FY2007. The RoE of the company is expected to go up from 14% in FY05 to 35% in FY06 and 37% in FY07. The RoCE will also firm up from 16% in FY05 to 32% in FY06 and 37% in FY07. We recommend a **BUY** on the stock with a price target of Rs235.

**Premier Explosives**

		<b>Rsmn</b>	<b>FY2003</b>	<b>FY2004</b>	<b>FY2005</b>	<b>FY2006E</b>	<b>FY2007E</b>
Reuters/Bloomberg Code	PRMR.BO/PRE@IN	NetSales	529.6	495.5	587.7	819.5	1026.2
Market Cap. (Rsmn)	1292.3	EBITDA	49.5	43.9	47.1	137.5	183.0
Market cap. (US\$m)	28.1	Net Profit	23.1	20.4	24.9	73.6	102.6
Shares Outstanding (mn)	8.1	EPS (Rs)	2.9	2.6	3.1	9.1	12.6
52-week High/Low (Rs)	179/8	EPS Growth (%)	617.1	-11.9	18.4	195.4	39.3
		EBITDA margin (%)	9.3	8.9	8.0	16.8	17.8
Major Share Holders (%)		PER (x)	54.1	61.4	51.9	17.6	12.6
Promoter/Majority	39.8	P/BV (x)	8.9	7.8	7.1	5.4	4.1
FII's	2.8	Dividend Yield (%)	0.0	0.7	0.9	1.3	1.6
Others	13.9	ROCE (%)	14.7	17.6	16.1	31.8	37.3
Public	43.5	ROE (%)	15.4	12.7	14.1	35.0	36.9

Source: Company and Karvy Estimates

## **Investment Positives**

### **Propelling defence programs**

Premier Explosives will enjoy significant scalability in the business of supplying solid propellant for defence programs. Around 40 people from the company have been formally trained with the defence laboratories to master solid propellant technology. All the programs of the IGMDP, other than Prithvi I and Prithvi II require solid propellant. Capacities set up by Premier Explosives are to supplement the capacities of defence laboratories. Premier Explosives received the first order of Rs. 15 Million in FY2005 and made their first dispatch in the last week of March 2005. The revenues from propellants in FY2005 will be insignificant at Rs. 0.7 million. From there on the growth will be significant, contributing to 12% of the total revenues in FY2006 & 22% in FY2007. Because of higher margins in this segment, it will result in overall strong margins for the company.

### **Induction of defence programs**

When a defence product gets inducted, it gets produced in large quantities to supply to the armed forces. The induction of certain products could prove to be a major upside for Premier Explosives as an increase in orders for certain product would translate into an additional requirement for propellants. We have not factored this aspect into our earnings. Therefore an upward revision of EPS will come about with the induction of any product using solid propellant.

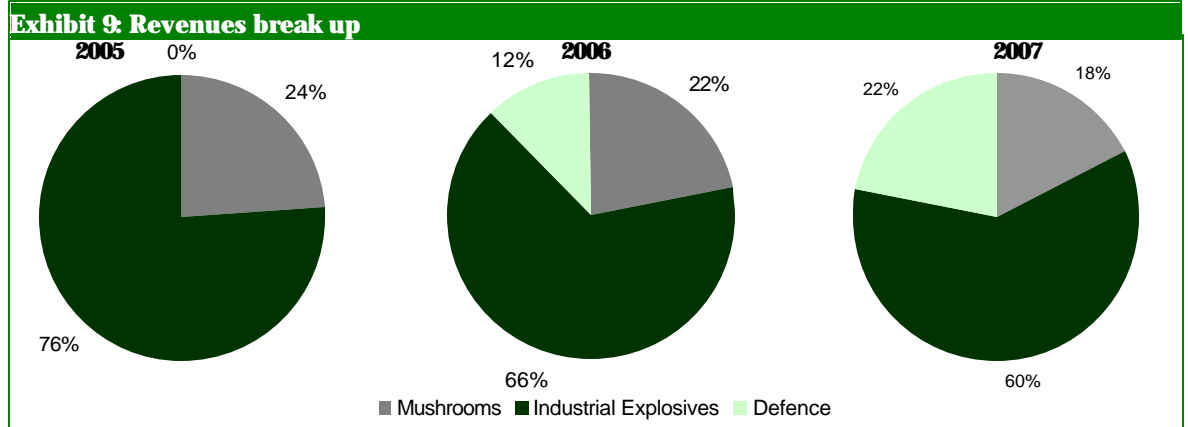
### **Likely price hike in industrial explosives**

Premier Explosives was set up in 1980 as a manufacturer of the entire range of Industrial Explosives and Accessories. Their major share of revenue comes from this business. It contributed to 76% of the turnover in FY2004 & is expected to come down to 60% in FY2007. Prices in this segment have been under pressure due to intense competition from many small players. There are 37 players in this segment. All of them have been in problems due to the price pressure in the industry. Therefore the Explosives Manufacturers Association of India (EMAI) whose Chairman is Mr. A.N.Gupta (Vice Chairman and Managing Director of Premier Explosives) has been activated in quest of a price increase. A 26% price increase has been negotiated by Premier Explosive with its main customer-Coal India Ltd. for one product from March 2005, onwards. This will boost top line growth and will also push margins up significantly. The company is also concentrating on selling higher margin explosives to improve bottom-line

### **Recovery of the mushroom division**

In 1996, Premier Explosives diversified into the business of cultivating mushrooms. Premier Explosives made an investment of Rs170 million in this venture at peak interest rates. A fall in prices of mushroom due to intense competition from China prevented this division to break even until FY2004.

With the successful turnaround of the mushroom business and the entire costly debt repaid, this business will also contribute to expand margins for the company. Adding to that, there has also been an increase in price of mushrooms. The revenues from this segment in value terms will be more or less stagnant for the next couple of years and will decrease as a percentage of total turnover.



Source: KSBL Research

### Lower cost debt to be profitability accretive

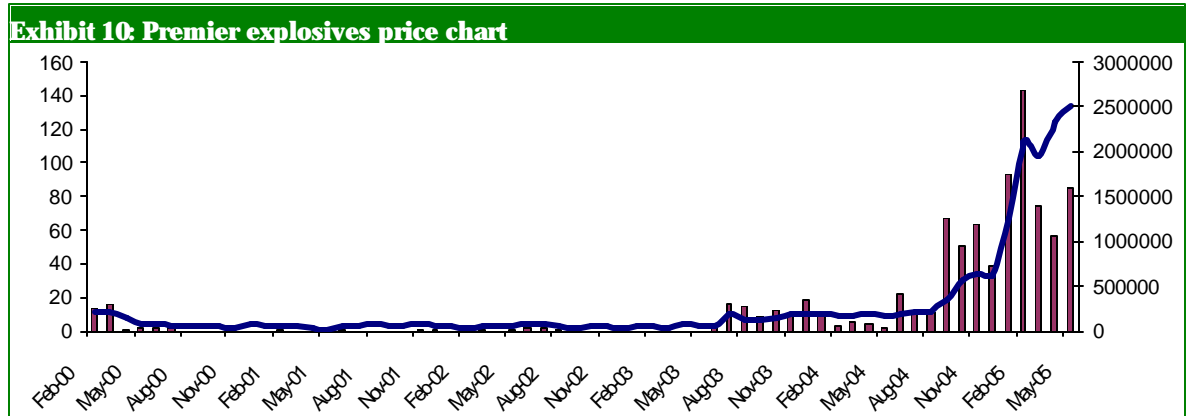
The high cost debt that was taken in 1996 to fund the mushroom project has been finally repaid in FY2005. This loan was taken at an interest rate of 17% to 20% per annum. New debt of Rs65 million has been brought on the books to fund the propellant business. This loan is taken at current interest rates therefore the interest burden for the company will go down from Rs21 million in FY2004 to Rs.16 million on FY2007. This saving in interest costs will have a positive impact on the profitability of the company and will revise EPS upwards.

### Concerns

Any major adverse impact on the defence program of India can have a negative impact on the company's revenues from the propellants business. With the defence industry being a very secretive industry, transparency in this business is very low. Heavy government regulation may cause turbulence in the revenues for the company. Although mushroom prices are quite low, any further reduction may affect earnings of the company adversely. Another cause for downward revision in earning could be any sort of problem that could occur amongst the members of the association formed for industrial explosives which could lead to prices moving southwards.

### Valuations

We are initiating coverage with a BUY rating on the stock. The growth prospects of the company can be seen from the valuations. At current levels, the stock trade at a PE/Growth of 0.17x FY06 & 0.12x FY07. An impressive EPS growth 195% and 39% is expected in FY06 and FY07 respectively. The RoE of the company is likely to increase from 14% in FY05 to 35% in FY06 and 37% in FY07. The RoCE will also exhibit strength from 16% in FY05 to 32% in FY06 and 37% in FY07.



Source: C-Line

### Profit & loss statement

Rsmn	FY2003	FY2004	FY2005	FY2006E	FY2007E
Net sales	530	495	588	820	1026
% growth	20	-6	19	39	25
Raw Material	277	263	295	418	534
Staff	69	70	81	115	144
Others	134	118	165	149	166
Total Expenditure	-480	-452	-541	-682	-843
EBITDA	49	44	47	137	183
% growth	25	-11	7	192	33
EBITDA margin (%)	9	9	8	17	18
Other income	16	27	23	12	14
Interest	-25	-21	-18	-18	-17
Gross Profit	40	50	52	132	181
% growth	74	24	4	155	37
Depreciation	-15	-15	-15	-21	-25
Profit Before Tax	25	35	37	110	155
% growth	209	41	6	199	41
Tax	-2	-15	-12	-37	-53
Effective tax rate (%)	7	42	33	33	34
Net Profit	23	20	25	74	103
% growth	609	-12	22	195	39
Extraordinaries	-22.83	0.00	0	0	0
Reported Net Profit	0	20	25	74	103
% growth	-93	8791	22	195	39
EPS (Rs)	3	3	3	9	13
% growth	617	-12	18	195	39
DPS (Rs)	0	1	2	2	3
Payout (%)	0	49	49	22	20

### Balance sheet

Rsmn	FY2003	FY2004	FY2005E	FY2006E	FY2007E
Equity	78	80	81	81	81
Reserves	73	91	102	157	237
Net worth	151	170	183	238	318
Short-term Loans	89	82	82	88	84
Long-term Loans	91	53	113	103	93
Total Loans	180	135	195	191	177
Liabilities	332	306	378	429	495
Gross Block	346	350	375	475	503
Depreciation	125	136	150	172	197
Net Block	221	214	225	303	306
Capital work-in-progress	3	7	0	0	0
Unallocated exp Pending Cap	3	2	0	0	0
Investments (ICD)	15	23	23	25	27
Inventories	97	104	118	160	200
Debtors	76	67	82	111	139
Cash	14	18	66	15	56
Other Current assets	5	6	6	12	15
Total Current assets	191	195	271	297	410
Creditors	84	82	94	134	171
Other current liabilities	14	39	29	41	51
Provisions	2	13	17	21	26
Total current liabilities	101	134	140	196	248
Net current assets	90	60	131	101	162
Total Assets	332	306	378	429	495

### Ratio analysis

	FY2003	FY2004	FY2005E	FY2006E	FY2007E
RoCE (%)	15	18	16	32	37
RoE (%)	15	13	14	35	37
Debt/Equity (x)	1.2	0.8	1.1	0.8	0.6
Interest cover (x)	2	3	3	7	10
RM/Sales (%)	52	53	50	51	52
Staff/Sales (%)	13	14	14	14	14
Others/Sales (%)	25	24	28	18	16

### Cash flow statement

Rsmn	FY2003	FY2004	FY2005E	FY2006E	FY2007E
EBIT	34	29	32	116	158
(Inc./)Dec in working capital	12	34	-23	-21	-19
Cash flow from operations	46	63	10	95	139
Other income	16	27	23	12	14
Depreciation	15	15	15	21	25
Interest paid (-)	-25	-21	-18	-18	-17
Miscellaneous Expenses	1	1			
Tax paid (-)	-2	-2	-12	-37	-53
Dividends paid (-)	0	-11	-14	-18	-23
Net cash from operations	52	72	3	55	86
Capital Expenditure (-)	-8	-9	-18	-100	-28
Unallocated Expenditure Written Off	0	1	2	0	0
Impairment loss on fixed assets	0	-5	0	0	0
Technical Know How Fees Written Off-23	0	0	0	0	0
Net cash after capex	20	60	-15	-45	58
Inc./(Dec.) in short-term borrowing	-1	-7	0	6	-4
Inc./(dec.) in long-term borrowing	-23	-38	60	-10	-10
Inc./(dec.) in borrowings	-24	-45	60	-4	-14
Inc./(Dec.) in Investments	2	-7	0	-2	-2
Equity issue/(Buyback)	0	1	1	0	0
Share Issue Exp written Off	0	0	0	0	0
Cash from Financial Activities	-22	-51	62	-6	-16
Others	-1	-4	0	0	0
Opening cash	16	14	18	66	15
Closing cash	14	18	66	15	56
Change in Cash	-2	4	48	-51	42



11 July 2005

Sector: Defence

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## Zen Technologies(Rs208)

BUY

*High on Simulation*

**Target Price: Rs285**

**Zen Technologies, a manufacturer of advanced training simulators for the security forces is a major beneficiary of the increasing capital expenditure allocated for the military and the police. The law and order situation in certain troubled states and the subsequent need to equip the police forces coupled with the modernization of the security forces is expected to drive the company's top line. Simulators are not only cost effective but superior for training the armed forces as compared with conventional techniques. We expect EPS growth at 50% and 41% for FY06 and FY07 respectively. Our price target for the stock is Rs285.**

**Strong demand to drive growth:** We expect the demand for training simulators to surge from the armed forces on account of its cost effectiveness. Demand for simulators from states where insurgency is high and from specialized police forces which have disproportionately higher expenditure is likely to drive Zen's sales. Paramilitary forces deployed in troubled states like Jammu and Kashmir (J&K) and in the north east are prime candidates for Zen's products. Similarly we expect the specialised anti-terrorist forces to also become major clients of the company. We expect the company's turnover to grow at a CAGR of 42% from FY05 to FY07.

**A possible additional trigger:** A tender has been submitted for a product for the Indian army which Zen Technologies has manufactured in alliance with a public sector company. Though Zen Technologies' product is technologically superior among the existing players, we have not factored this order into our earnings projections. If this order materialises, our EPS target will be revised upwards to Rs14.5 for FY06 and Rs23.6 for FY07.

**Innovative products to lead the way:** The turnover of Zen Technologies is expected to gather further momentum as a result of introduction of novel products such as the Driving Training Simulator, Tactical Engagement Simulator and other products like Unarmed Aerial Vehicle/Remote Pilot Vehicle which are still in the R&D stage. These products have enormous market potential which will boost its turnover in the years to come.

**Valuations:** We expect strong EPS growth of 50% in FY06, and 41% in FY07. At current levels of Rs208, the stock looks attractive at a PEG of 0.41 xFY06 and 0.29 xFY07. What makes the stock further attractive is the strong RoCE of 50% in FY06 and 51% in FY07 as well as a firm RoE of 36% in both years. At our price target of Rs285, the stock is valued at a PEG 0.56x FY06 and 0.40x FY07. We initiate coverage on the company with a **BUY**.

Zen Technologies		Y/E Mar (Rs mn)	FY2003	FY2004	FY2005	FY2006E	FY2007E
Reuters/Bloomberg code	ZENTE.BO/ZEN@IN	Net sales	65.1	123.7	190.1	275.7	386.0
Market cap. (Rsmn)	1587.0	EBITDA	27.6	66.3	103.9	147.8	204.6
Market cap. (US\$mn)	36.9	Net profit	17.0	51.0	64.3	96.3	135.4
Shares outstanding (mn)	7.6	EPS (Rs)	2.2	6.7	8.4	12.6	17.7
52-week High/Low (Rs)	210/21	EPS growth (%)	259.7	200.0	25.9	49.9	40.6
		EBITDA margin (%)	42.4	53.6	54.6	53.6	53.0
Major shareholders (%)		PER (x)	93.3	31.0	24.7	16.5	11.7
Promoter	49.6	P/BV (x)	17.3	11.5	8.4	5.9	4.2
FII's	8.7	EV/EBITDA (x)	55.8	23.1	14.9	10.7	7.4
Banks/FIs/MFs	7.2	Dividend yield (%)	0.3	0.4	0.8	1.3	1.6
Others	8.2	RoCE (%)	30.9	44.4	50.4	50.2	51.5
Public	26.3	RoE (%)	18.5	37.1	34.0	36.3	35.9

Source: Company and Karvy Estimates



## Investment Positives

### **The business- promising growth**

Zen Technologies, based in Secunderabad, is engaged in the business of developing, designing and manufacturing advanced training simulators required by security forces like the Military, Para-military, Police and other forces involved in similar functions. Most of these forces have integrated these training simulators into their training cycle. Since incorporation in 1993, Zen Technologies has been manufacturing the Firearms Training Simulator, which is necessary for the security forces. A Firearms Training Simulator essentially replaces a "Firing Range" which has been the key mode of training used by these security forces. Presently, the use of a Firing Range has become complex due to the difficulties involved in obtaining open space and the danger caused to the people and cattle living in the vicinity due to accidents which may occur during these training sessions. This has made the use of a Firearms Training Simulator indispensable. Along with overcoming the difficulties of training on a Firing Range, the Firearms Training Simulator proves to be a cost effective method of training as it saves on the ammunition cost.

### *Small arms training simulator*

The Small Arms Training Simulator (SATS), was the first Firearms Training Simulator that Zen Technologies launched in 1993. This was designed to develop the firing skills of the security forces. It proved to be very effective, enabling practice on a variety of small arms including AK-47, .303mm rifle, 7.62mm rifle, 9mm pistol, carbine, Light Machine Gun (LMG) and revolvers. The SATS simulates different firing scenarios, weather conditions, recoil of weapons. It enables shooting in different positions and helps in analyzing shooting accuracy and progress of individuals. Having sold close to 140 SATS till date, this product has been very successful for the company. Priced approximately at Rs1.5 mn, it contributed to 17% of the company's turnover in FY05 and is expected to contribute close to 20% in FY06. Strong demand for this system is seen primarily from different Police and Para-military forces at district levels.

### *Interactive firearms training simulator*

Introduced in 2002, the Interactive Firearms Simulator, (iFATS) was well accepted. Six systems were sold in the year of the launch itself. Priced at Rs.4.5 Million, the iFATS is an advanced version of the SATS system. It enables eight simultaneous firers and is networkable up to 32 firers. It is far more realistic than its previous counterpart and enables pre-recorded live scenarios customized for different forces and varied situations. Along with replacing a firing range it also enables the creation of life-like situations and diverse weather and visibility conditions. The success of this system can be established from the fact that many organizations have preferred this system to that of established global players like Fats Inc. of the US. Some organizations using foreign (imported) systems have later upgraded to the iFATS system. Contributing to 58% in FY05 of the revenues, iFATS was the key product for Zen Technologies. Even with new products being introduced, we expect this product to contribute to 35% of the company's revenue.

In spite of global competitors like, Amcoram (Israel), Saab Simulation and Training System (Sweden) and others, Zen Technologies is successful on the basis of its cost competitiveness which makes its systems one third the price of systems manufactured by foreign companies. Again Zen Technologies makes products which are specifically customized for the Indian security forces which foreign companies are unable to do. Another significant reason as to why Zen Technologies is preferred to foreign players, is the impending threat of sanctions from foreign countries whereby the supply of foreign products and spares in this crucial sector of defence could dry up making the investment in foreign systems useless. The future prospects of Zen Technologies look strong, keeping in mind the Indian Government's move towards indigenization in the defence sector, proving to be very beneficial for defence companies engaged in this sector.

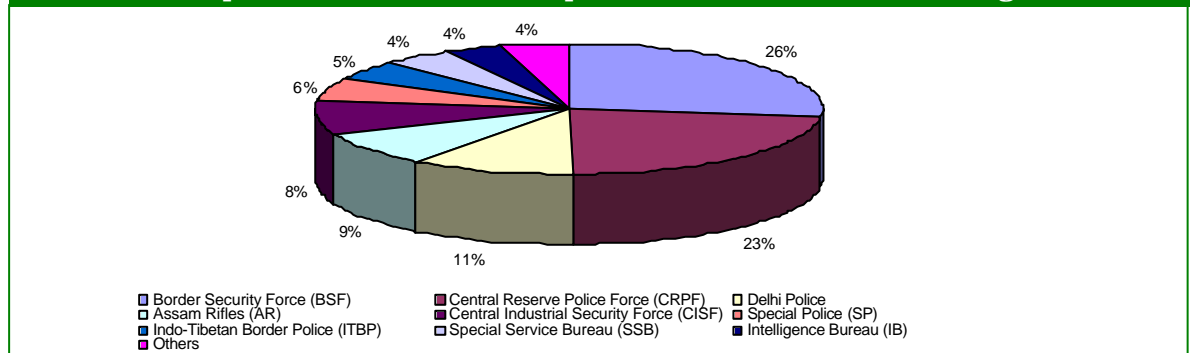
### The Macro Environment: Fueling Demand

To maintain India's sovereignty, the country must not only protect itself from external threats but also defend against internal threats like terrorism, insurgencies, secessionist movements and law and order problems stemming from socio-economic issues like poverty and unemployment.

In any country, the coercive arms of the State are the Military and the Police, with the former normally protecting the nation from foreign threats while the latter addressing law and order problems. But in India, the army is used extensively for internal problems of counter insurgency in Jammu and Kashmir (where it is estimated that around 600,000 soldiers/central police are deployed along the Line of Control and for internal duties) and in secessionist movements in the north east corner of India where the inhabitants do not identify themselves with mainstream India. In these States, power flows from the barrel of the gun and the Army commanders wield probably as much, if not more power than the elected representatives.

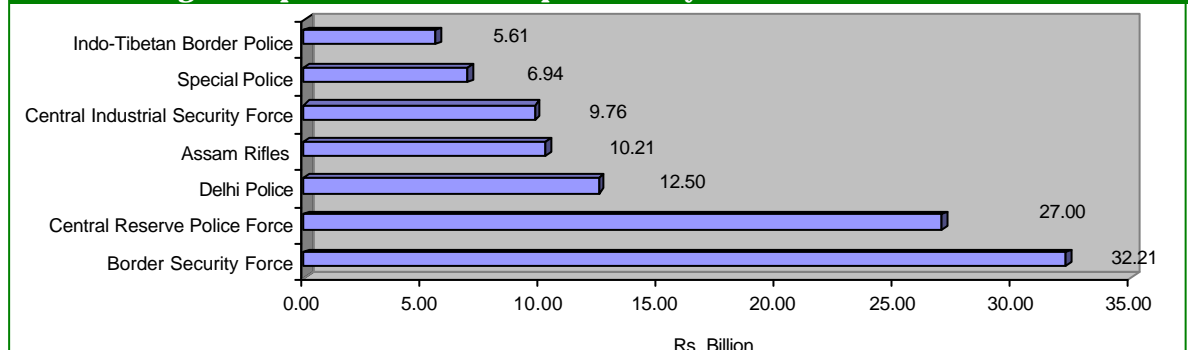
To maintain India's unity, the Central Government has at its disposal a wide array of armed forces from the regular army, to para-military forces like the Central Reserve Police Force (CRPF), the largest paramilitary force (in terms of head count see Exhibit 3) for combating terrorism and assisting in elections, the Border Security Force (BSF) (at times deployed in Andhra Pradesh, which does not have an international border), Assam Rifles (commanded by army officers but under the Home Ministry), the Indo-Tibetan Border Police (ITBP), originally formed to be deployed along the Indo-Tibetan border but has since been deployed elsewhere like in Kashmir and specialized forces like National Security Guards (NSG), a highly trained, anti-terrorist squad and the Special Protection Group (SPG) for protecting the Prime Minister and previous Prime Ministers and their families (*See Exhibit 1, 2 & 3*). In addition to various central government police and para-military forces, the state governments also have considerable police forces at their disposal. Indeed, internal security is an issue which the government takes extremely seriously and there appears to be no shortage of central and state government funds for this purpose.

**Exhibit 1: Break up of Central Government Expenditure on Police forces-2006 Budget Estimates**



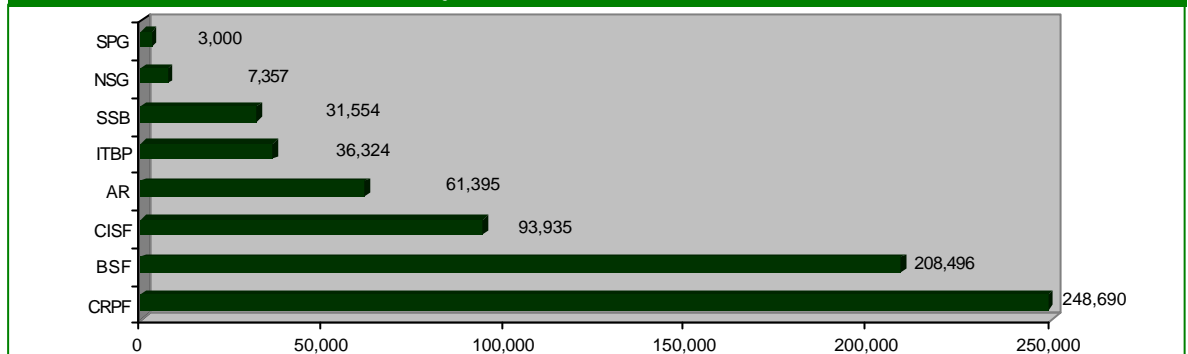
Source: Union Budget

**Exhibit 2: Budgeted expenditure on various para-military forces for 2006**



Source: Union Budget

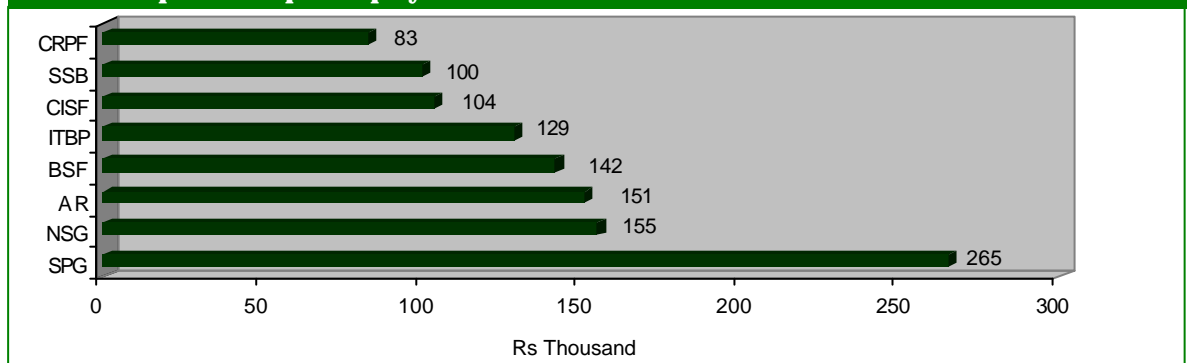
**Exhibit 3: Headcount of Para Military forces - 2004**



Source: Home Ministry and [www.bharat-rakshak.com](http://www.bharat-rakshak.com)

Specialized forces like the NSG and SPG have been given relatively higher budgets and this is visible in the disproportionately higher expenditure per employee as compared with the other larger para-military forces. Therefore their expenditure on equipment and training is expected to be higher than that of other forces.

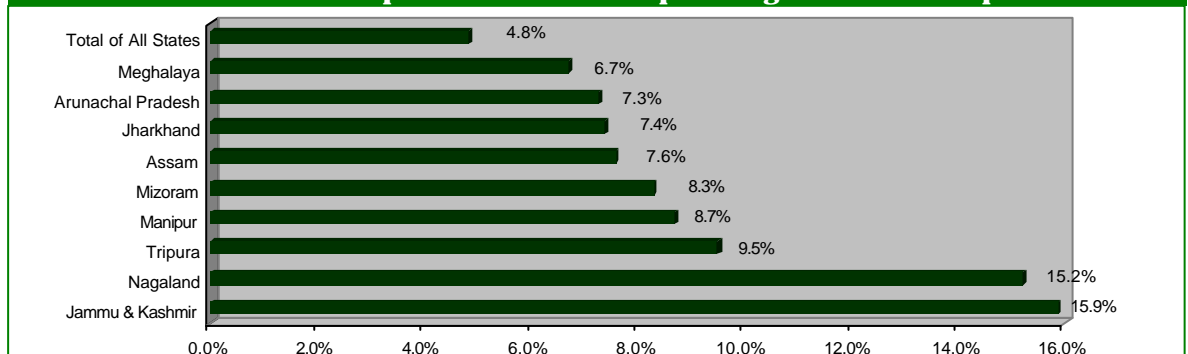
**Exhibit 4: Expenditure per employee in various forces-2004**



Source: Home Ministry, Union Budget and [www.bharat-rakshak.com](http://www.bharat-rakshak.com)

Although threats in Jammu and Kashmir appear to be receding, new ones like the Naxalite movements from Nepal, Bihar and Andhra Pradesh appear to be increasing. The north east insurgency also continues to fester. The north eastern states of Nagaland, Tripura and Manipur along with Jammu and Kashmir have significantly higher state police expenditure to total state government expenditure as compared with other states which highlights their law and order situation.

**Exhibit 5: State Government expenditure on Police as percentage of total state expenditure 2004**



Source: Reserve Bank of India

### Five year modernization plan for paramilitary forces

To maintain the efficacy of the central para-military forces, the government invests considerable amounts in training and modernizing. To meet the challenges of increased militancy and terrorist activities, a five year perspective plan (starting from 2003) for modernization of weaponry, machinery, transport, communication, surveillance, night vision, and training equipment has been formulated. The financial outlay over a period of 5 years is Rs37,078 mn. We therefore expect expenditure on para-military to continue to rise. The outlay is skewed in favour of BSF to strengthen the Air-wing and funds have been allocated for purchase of aircrafts and helicopters.

Exhibit 6: Approved modernization plan for Para Military forces						(Rs Mn)
Name of the Force	Year I	Year II	Year III	Year IV	Year V	Total of 5 years
Assam Rifles	494	1,006	1,004	1,000	1,014	4,518
BSF	3,533	4,384	5,143	5,149	5,100	23,309
CISF	235	246	252	206	181	1,121
CRPF	1,035	1,193	1,046	1,102	1,052	5,428
ITBP	551	466	279	274	309	1,878
NSG	308	202	154	93	68	825
Total	6,156	7,497	7,878	7,824	7,724	37,078

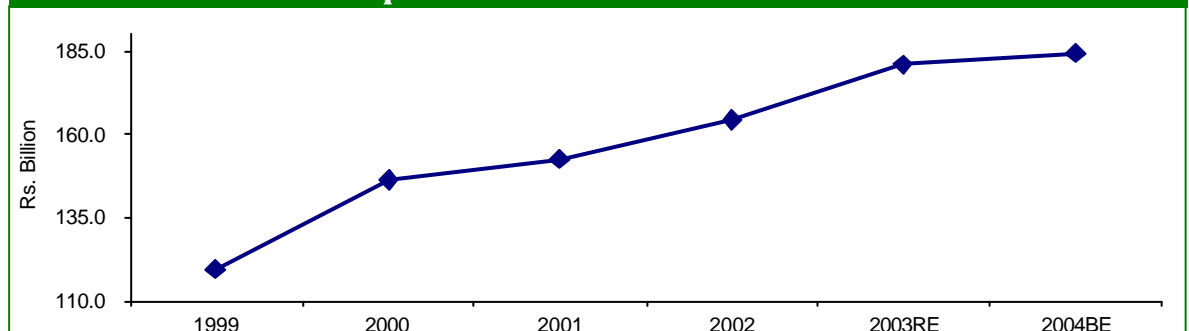
Source: Home Ministry

### Stimulating demand to spur prospects

The requirement of training simulators is crucial for all types of security forces. This would include military, para-military, police and other security forces like the BSF, NSG, and CISF. Importance is being given to modernization of the military forces. This can be observed from the capital expenditure on defence which has increased by 178% in the last 5 years, i.e. from Rs.123.84 bn in 2001 to Rs.343.75 bn in 2006. Due to immense importance being laid on training, we expect greater allocations of funds for these simulators. Zen Technologies has been closely interacting with the armed forces to market its products. With emphasis being laid on private sector participation in the defence sector to accomplish the purpose of achieving self-sufficiency, the prospects for Zen Technologies from this stream look very promising.

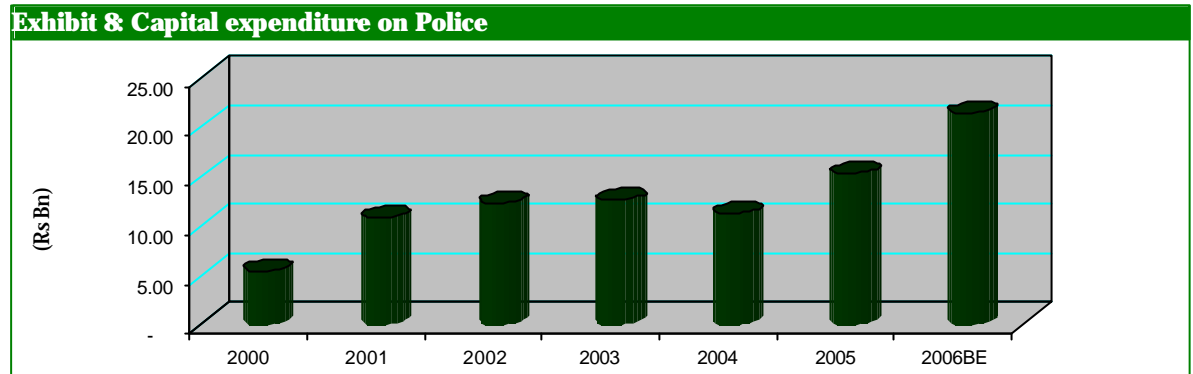
Zen Technologies has received significant orders from the police since its inception. The first SATS was supplied to the Delhi Police in 1997 and since then it has been catering to the police forces of a large number of states. Modernization of police forces is assuming greater importance. This can be substantiated by the fact that the total state governments expenditure on police has gone up 54% from Rs119.6 bn in 1999 to Rs184.6 bn in 2004.

Exhibit 7: State Government expenditure on Police



Source: Reserve Bank of India

To supplement this, budgetary allocations (Union Budget) for capital expenditure on the Police rapidly increased at a CAGR of 26% over the last six years from Rs5.48 bn in FY2000 to Rs21.42bn in FY2006,. In 2006, capital expenditure on Police saw an increase of 40%. The increased focus on modernization of the Police Force indicates greater business potential for the company.



Source: Union Budget

Besides business prospects from the military and police forces, other security forces like the CRPF, CISF, BSF, NSG and others also require these simulators. Zen Technologies has already provided these simulators to most paramilitary and state police forces.

#### **An additional trigger**

Zen Technologies in association with a public sector company has manufactured a novel product for training the military forces. The competition for this product comes from other public sector companies. This product priced at an average of Rs10 Million is a very cost effective method of training army personnel. This could prove to be a major upside for Zen Technologies as currently a tender has been submitted for an Rs.400million order from the army of which Rs.200million will add to the company's turnover. The revenues from this order will be spread over a period of 12 months.

Though the odds for this order seem to be in favour of Zen Technologies as their product is technologically superior, we have not factored the upside from this order into our earning estimates. On a positive note, if we assume the order comes through, our EPS targets will be revised upwards to Rs14.5 for FY06 and Rs23.6 for FY07.

#### **Stimulating long term prospects**

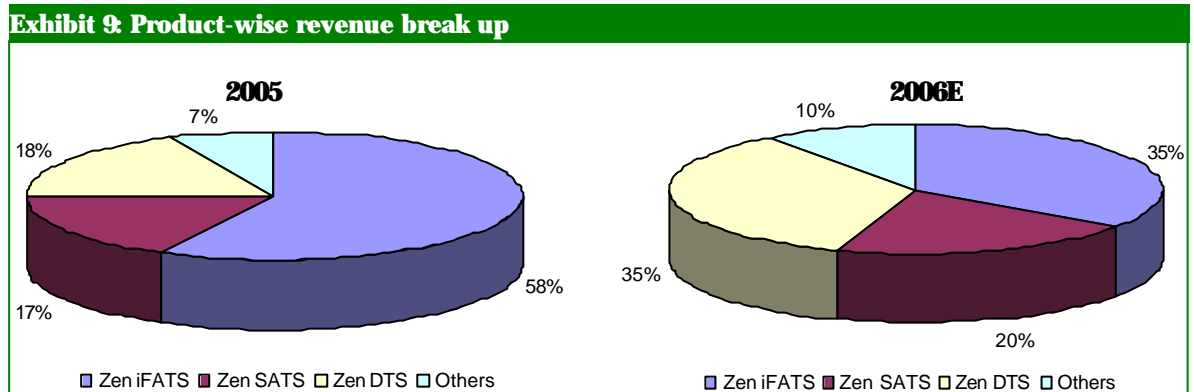
The long term outlook for the company stimulated by their introduction of innovative products looks very promising. Zen Technologies aims to introduce a new product every year on an average from now on.

In 1999, the company launched its Hand-Grenade simulator (HE-36S). This is ideal for practice of timing and lobbing hand-grenades used by the military and para-military forces. Hand-grenades have been a major cause of casualty during training and the forces have been using pebbles to learn the art of throwing hand grenades. This product has made inroads in the para-military forces and is currently being marketed to the military. Approval by the military forces could result in sizable orders.

In FY05, the company launched another product, the Driving Training Simulator, used for driving training on a wide range of vehicles. Potential users of this product are security forces requiring training in convoy exercises and the State Road Transport Authorities (SRTA). The product has taken off successfully with eight of them being sold in the year of launch itself.

Zen Technologies is on the threshold of introducing a novel product called the Tactical Engagement Simulator (TacSim). It is a very innovative product with an enormous market potential of Rs.2000 Million (company estimates) from the army. TacSim, is a small arms firing skill enhancer which allows trainees to simulate various indoor and outdoor engagement scenarios in a very realistic manner. The training can be conducted in one-to-one combat situation or in groups as well.

The long term prospects for Zen Technologies look bright with several products like the Unmanned Aerial Vehicle/Remote Pilot Vehicle (UAV/RPV) and others which are under wraps in the R&D stage. With advanced training gaining importance, Zen Technologies products are positioned for significant growth.



Source: Company and KSBL Estimates

### Margins to keep profit growth strong

The company enjoys phenomenally high margins which have firmed up from 42% in FY03 to 55% in FY05. We expect margins to remain strong at 54% in FY06 and 53% in FY07. Strong margins coupled with an increase in turnover at a CAGR of 42% over the next two financial years will keep growth in net profits very strong at 50% in FY06 and 42% in FY07.

### Exports to thrust turnover

To leverage on its cost advantage, Zen Technologies is aggressively looking at the overseas market. Its strategy is to tie up with local players in other countries to market its range of products. The company has set up a marketing office in London and is further looking at setting up offices in other countries as well. The company wants to target countries in South East Asia, Middle East, Latin America and Africa. It has been participating in international exhibitions as well. Zen Technologies exported worth Rs.8.4 Million in FY05 and is targeting exports worth Rs.25 Million in FY06.

**Exhibit 10: Estimated market size of Zen Technologies' products**

Market Size ( Rs. Million)	India	Overseas
Small Arms Training Simulator	500	750
Interactive Firearms Simulator	4,000	6,000
Driving Training Simulator	5,000	7,500
Tactical Engagement Simulator	2,000	3,000
Hand-Grenade Simulator	50	100

Source: Zen Technologies

### Sprucing up manpower

The company has been sprucing up its team with experienced people from the armed forces, for instance Colonel R.S.Dhull (Retd.), Colonel V. S. S. Satish (Retd.), Captain (IN) S.K.Banerjee(Retd), Squadron Leader P. Ravindra (Retd.), are lending their expertise to the company. This is beneficial as these people have been the end users of armament and will thus be able to provide accurate suggestions in terms of design based on requirements of the end users. Their contacts and knowledge of processes in defence buying would also prove to be valuable. Ashok Atluri, the Managing Director of the company, with a background in applied computer science is one of the important persons in designing the simulators. Zen Technologies has been building up its intellectual capital with other people having strong technical backgrounds like Mr. Ravi Kumar, Director (Technical), with a background in System Programming and Robotics and Mr. Kishore Dutt, Vice President, with a background in Computer Applications. The number of employees has gone up from 52 in FY04 to 73 in FY05. This number is expected to go up to around 140 over the next 2 years.

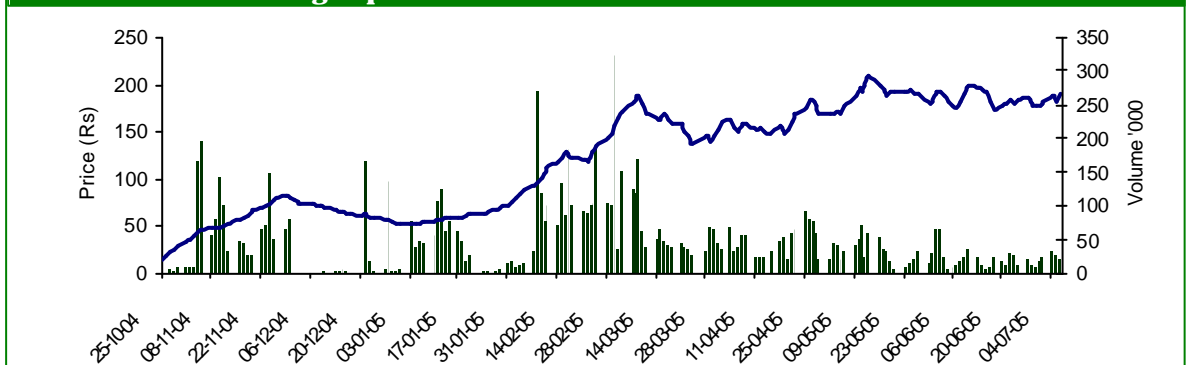
### Concerns

Defence and police orders can get delayed and visibility of sales is always a concern. Moreover, the secrecy associated with defence orders could prove to be a negative for the company. Majority of the business of Zen Technologies is government oriented, thus a drastic change in the government policies can adversely affect its revenues. In spite of its cost competitiveness and compatibility to the Indian Security Forces, the threat from foreign companies always remains. Presently, domestic competition is insignificant, but going forward new players in the domestic market can pose a challenge to Zen Technologies.

### Valuations

At a price of Rs.208, the valuations for Zen Technologies look attractive. We expect strong EPS growth for the company of 50% in FY06, and 41% in FY07. At current levels the stock trades at a PEG of 0.41x FY06 and 0.29x FY07. RoCE of 50% in FY06 and 51% in FY07 as well as a firm RoE of 36% in both years makes the valuation look further attractive. We expect a 37% upside in the price to Rs.285. At our price target, the stock is valued at PEG of 0.56x FY06 and 0.40x FY07. We initiate coverage on the company and rate it a **BUY**.

**Exhibit 11: Zen Technologies price chart**



Source: C-Line

### Profit & loss statement

Rsmn	FY2003	FY2004	FY2005	FY2006E	FY2007E
Net sales	65.1	123.7	190.1	275.7	386.0
<i>% growth</i>	<i>345.6</i>	<i>90.1</i>	<i>53.7</i>	<i>45.0</i>	<i>40.0</i>
Raw material	7.0	11.2	19.2	27.6	40.5
Staff	1.9	3.2	4.3	6.6	9.6
Any other	28.6	43.0	62.7	93.7	131.2
Total expenditure	37.5	57.4	86.2	127.9	181.4
EBITDA	27.6	66.3	103.9	147.8	204.6
<i>% growth</i>	<i>8,575.2</i>	<i>140.4</i>	<i>56.7</i>	<i>42.2</i>	<i>38.4</i>
EBITDA margin (%)	42.4	53.6	54.6	53.6	53.0
Other income	2.5	4.5	4.0	2.0	3.7
Interest	0.4	1.3	1.9	2.0	1.5
Gross profit	29.6	69.4	106.0	147.8	206.8
<i>% growth</i>	<i>474.9</i>	<i>134.6</i>	<i>52.7</i>	<i>39.4</i>	<i>39.9</i>
Depreciation	0.5	0.8	1.1	4.1	4.7
Profit before tax	29.1	68.7	104.9	143.7	202.1
<i>% growth</i>	<i>509.7</i>	<i>135.8</i>	<i>52.8</i>	<i>37.0</i>	<i>40.6</i>
Tax	12.1	17.6	40.6	47.4	66.7
Effective tax rate (%)	41.5	25.7	38.7	33.0	33.0
Net profit	17.0	51.0	64.3	96.3	135.4
<i>% growth</i>	<i>261.8</i>	<i>199.5</i>	<i>26.0</i>	<i>49.8</i>	<i>40.6</i>
Extraordinaries	0.0	0.0	0.0	0.0	0.0
Reported net profit	17.0	51.0	64.3	96.3	135.4
<i>% growth</i>	<i>261.8</i>	<i>199.5</i>	<i>26.0</i>	<i>49.8</i>	<i>40.6</i>
EPS (Rs)	2.2	6.7	8.4	12.6	17.7
<i>% growth</i>	<i>259.7</i>	<i>200.0</i>	<i>25.9</i>	<i>49.9</i>	<i>40.6</i>
DPS (Rs)	0.5	0.8	1.5	2.3	2.8
Payout (%)	22.4	11.2	18	18	16

### Ratio analysis

	FY2003	FY2004	FY2005E	FY2006E	FY2007E
RoCE (%)	30.9	44.4	50.4	50.2	51.5
RoE (%)	18.5	37.1	34.0	36.3	35.9
Debt/Equity (x)	0.04	0.15	0.12	0.09	0.05
Interest cover (x)	66.3	52.2	55.1	73.1	135.3
RM/Sales (%)	10.7	9.1	10.1	10.0	10.5
Staff/Sales (%)	3.0	2.6	2.3	2.4	2.5
Others/Sales (%)	43.9	34.7	33.0	34.0	34.0

### Balance sheet

Rsmn	FY2003	FY2004	FY2005E	FY2006E	FY2007E
Equity	76.3	76.3	76.3	76.3	76.3
Reserves	15.7	61.2	112.6	189.1	300.4
Net worth	92.0	137.5	188.9	265.4	376.7
Short-term loans	3.8	19.5	22.7	24.5	18.6
Long-term loans	0.0	0.5	0.5	0.4	0.2
Total loans	3.8	20.0	23.3	24.9	18.8
<b>Liabilities</b>	<b>95.7</b>	<b>157.6</b>	<b>212.2</b>	<b>290.3</b>	<b>395.5</b>
Gross block	22.6	37.7	63.3	135.3	156.3
Depreciation	9.6	11.0	12.1	16.2	20.9
Net block	13.0	26.6	51.2	119.2	135.5
Capital work-in-progress	8.0	7.7	12.0	20.0	0.0
Inventories	3.3	9.7	15.2	21.5	34.7
Debtors	29.9	73.6	120.0	165.4	235.4
Cash	51.6	70.2	58.1	28.7	74.2
Other current assets	5.2	8.5	15.2	22.1	32.6
Total current assets	90.0	162.0	208.5	237.7	376.9
Creditors	9.5	26.7	34.5	51.2	70.7
Other current liabilities	0.0	0.7	1.9	2.8	3.9
Provisions	5.8	11.3	23.2	32.6	42.3
Total current liabilities	15.3	38.7	59.6	86.5	116.9
Net current assets	74.7	123.2	148.9	151.2	260.0
<b>Total assets</b>	<b>95.7</b>	<b>157.5</b>	<b>212.2</b>	<b>290.3</b>	<b>395.5</b>

### Cash flow statement

Rsmn	FY2003	FY2004	FY2005E	FY2006E	FY2007E
EBIT	27.1	65.5	102.8	143.7	199.9
(Inc./Dec) in working capital	-6.0	-30.0	-37.7	-31.6	-63.4
Cash flow from operations	21.1	35.6	65.1	112.1	136.4
Other income	2.5	4.5	4.0	2.0	3.7
Depreciation	0.5	0.8	1.1	4.1	4.7
Interest paid (-)	-0.4	-1.3	-1.9	-2.0	-1.5
Tax paid (-)	-2.3	-15.5	-40.6	-47.4	-66.7
Misc exp	1.0	-1.1	0.0	0.0	0.0
Dividends paid (-)	-4.3	-6.5	-12.9	-19.8	-24.1
Net cash from operations	18.0	16.4	14.7	48.9	52.6
Capital expenditure (-)	0.1	-14.8	-30.0	-80.0	-1.0
Net cash after capex	18.0	1.6	-15.3	-31.1	51.6
Inc./(Dec.) in short-term borrowing	0.8	15.7	3.3	1.8	-5.9
Inc./(dec.) in long-term borrowing	0.0	0.5	0.0	-0.1	-0.2
Inc./(dec.) in borrowings	0.8	16.2	3.3	1.7	-6.1
Cash from financial activities	0.8	16.2	3.3	1.7	-6.1
Others	1.8	0.7	0.0	0.0	0.0
Opening cash	31.0	51.6	70.2	58.1	28.7
Closing cash	51.6	70.2	58.1	28.7	74.2
Change in cash	20.6	18.6	-12.1	-29.4	45.5



26 August 2005

Sector: Defence

## Avantel Softech(Rs171)

### Future Perfect



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**BUY****Target Price: Rs230**

**Avantel Softech, a company specializing in Radio Frequency (R F) and microwave communication is venturing into the highly lucrative defence and space communication segment. Satellite communication and electronic counter measures is integral to modern warfare and Avantel is strategically positioned in this futuristic segment. We expect shareholders to benefit from the exponential growth in profitability and we initiate coverage with a BUY.**

**High demand for jammers and predetonators to counter remote controlled bombs:** With insurgency rife in Kashmir and in other select states, the use of remote controlled bombs is becoming the favourite weapon of insurgents. Avantel in association with Defence labs is developing an advanced jamming system and pre-detonators that can counter this threat. The trigger in revenues from these electronic counter-measures will result in strong growth for the company in FY07 and FY08.

**Strong potential for satellite communication:** Avantel is working with the Indian Navy (IN) for a more secure ship to shore satellite communication as against the present High Frequency (HF) communication. In naval warfare, maintaining secrecy is essential for fear of detection and communications with naval vessels have to be brief and extremely secure. In the IN, satellite communication will eventually replace HF communication. The Company expects an order of around Rs100mn-110mm for this Mobile Satellite Services (MSS) hub in the near future. Besides naval communication, the potential for MSS is considerable as with modifications it can be used for communication with naval helicopters, and maritime reconnaissance aircrafts.

**Defence revenues triggered by surveillance systems:** In April 2005, Avantel received an order of Rs75.3mn from Electronics Corporation of India Ltd. (ECIL), Hyderabad. The order is to provide 2 subsystems for a land mounted COMINT (communication intelligence) surveillance system to be deployed near the borders. We expect 60% of the revenues (Rs75.3mn) to come in FY06 and the remaining 40% by FY07.

**Valuations:** We expect EPS growth of 186% CAGR over FY06 and FY07. The RoE of the company will strengthen from 5.7% in FY05 to 25.2% in FY06 and 29.8% in FY07. The RoCE will also grow from 8.4% in FY05 to 25.0% in FY06 and 34.4% in FY07. At current levels of Rs171, the stock trades at PEG of 0.14x FY06 and 0.09x FY07. We expect 35% increase in price to targeted levels of Rs230. We recommend **BUY** on the stock.

Avantel Softech		Y/E March (Rsmn)	FY2003	FY2004	FY2005	FY2006E	FY2007E
Reuters/Bloomberg code	AVAN.BO/AVTS@IN	Net sales	67.0	93.1	101.0	253.8	376.5
Market cap. (Rsmn)	881.3	EBITDA	11.6	19.4	15.1	57.1	97.9
Market cap. (US\$m)	20.5	Net profit	0.4	1.1	6.2	33.5	50.8
Shares outstanding (mn)	5.2	EPS (Rs)	0.1	0.2	1.2	6.5	9.9
52-week High/Low (Rs)	181/10	EPS growth (%)	NA	154.4	479.0	440.3	51.7
		EBITDA margin (%)	17.2	20.8	15.0	22.5	26.0
		PER (x)	2094.3	823.1	142.1	26.3	17.3
Major shareholders (%)		Market Cap/Sales	13.2	9.5	8.7	3.5	2.3
Promoter/Majority	33.34	EV/EBITDA (x)	79.7	46.5	59.3	16.2	9.4
FII's	1.65	Dividend yield (%)	0.0	0.0	0.0	0.9	1.2
Others	12.78	RoCE (%)	4.1	11.7	8.4	25.0	34.4
Public	52.23	RoE (%)	0.4	15.0	5.7	25.2	29.8

Source: Company and Karvy Estimates

## Investment Positives

### Avantel-on the threshold of strong growth

Incorporated in 1990, Avantel set out by designing, developing and manufacturing components needed by the wireless industry. The company's core competence is in Radio Frequency (RF) and microwave communication field supported by digital signal processing and application software skills.

In the last 15 years, Avantel has catered primarily to the telecom segment. The company started with the manufacture of RF/Microwave products and went on to manufacture analog and digital communication systems. Avantel developed communication software solutions for access products and network management software. Avantel also developed customized software for products such as satellite modems, Digital Subscriber Loop (DSL) modems and interface converters.

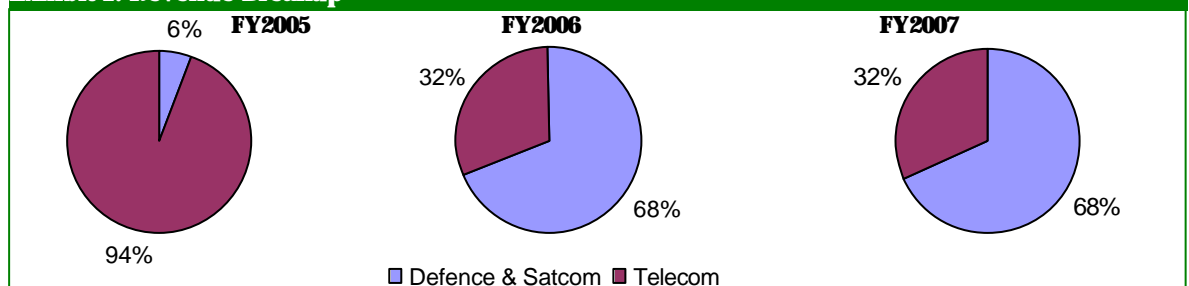
Avantel is leveraging its core competence for defence and satellite communication (satcom). The objective is to emerge as leaders in wireless and satcom as defence and satcom are segments which require considerable experience. Production in these segments cannot be automated as products have to be customized. Avantel in the past 10 years has gathered tacit knowledge through hands on experience. Avantel has over 130 technically qualified professionals with in-house R&D employing 50 engineers. Mr. A.Vidyasagar, M.Tech (IIT Kharagpur), the Managing Director of the company has worked with Hindustan Aeronautics (HAL). The top management of the company consists of technically qualified people having experience in the fields of defence and telecom. (See exhibit 2).

With emphasis being given to the private sector participation in defence and with space technology gaining importance, we believe that Avantel is an attractive investment. The future prospects from its defence and satcom venture coupled with steady revenues from telecom look very promising for the company. Moreover, the dearth in number of RF/microwave product manufacturers due to the intensive requirement of technically qualified and trained manpower will prove to be a big positive for Avantel. We expect defence and satellite communication to be the major drivers of growth for the company. Avantel has been undertaking research on various products which are due to give fruits in the near term. The company has been a subsystem provider for defence products. They have been doing research on various products. Orders in sizable quantity are expected for these products. Avantel wants to progress from being a subsystems provider to becoming provider of entire system solutions.

Defence orders are received from three broad categories. When the order is for subsystems, orders are received from defence labs like Defence Research and Development Organization (DRDO). This is primarily during the R&D phase of a product. During the production stage orders are received from Public Sector Units involved in defence production like Bharat Electronics (BEL) and Electronics Corporation of India (ECIL). In cases when the entire system/product is being manufactured by Avantel, then orders are placed directly by the defence services.

We expect strong top line growth of 151% in FY06 and 48% in FY07. This will be accompanied with a strong margin expansion on account of increasing proportion of high margin defence sales. Margins are expected to firm up from 15% in FY05 to 23% in FY06 and 26% in FY07.

**Exhibit 1: Revenue Breakup**



Source: Karvy Estimates

### Exhibit 2: Top Management of Avantel

Name	Designation	Qualification	Career Highlights
A.Vidyasagar	Managing Director	M.Tech (IIT Kharagpur), MBA(Osmania university)	Ex-Hindustan Aeronautics (HAL)
A.Venkateswara Rao	Chairman	NA	Ex-Life Insurance Corporation
Maj Gen(Retd)	Director	B.E.(Madras University)	Ex-DLRL
S Balakrishnan, VSM, M.Tech		JNTU, Hyderabad	
K.B.Krishna Moorti	Director, Audit committee chairman	B.Com, F.C.A.	Ex-Life Insurance Corporation
K.Ramesh	Vice President - Operations	M.Tech (IIT – Kharagpur)	Asst. Professor, Bapatla Engineering College
Cdr KV Subramaniyam (Retd)	Technical Advisor	M.Sc.(Defence Studies)	Indian Naval Commander at Trincomalee
Surendra Babu Kurra,	GM (Marketing)	B.E.(Bangalore University)	Dealt with several departments of BSNL (DOT) and Indian Railways
Lt Col (Retd) Siva Satyanarayana Velagaleti	GM (R&D)	M.E.Birla Institute of Technology & Science Diploma in Management, Indore University	Ex-Defence Research & Development Organisation (DRDO)

Source: Company

#### Electronic Counter Measures to combat remote controlled bombs

In certain states like Jammu and Kashmir (J&K) where insurgent activity is high, there has been a rise in remote controlled bombs or improvised explosive devices (IEDs). To combat the insurgency, the government has decided to equip its military and para-military forces like the Central Reserve Police Force (CRPF), National Security Guards (NSG) with suitable counter measures. Certain devices like jammers and pre-detonators are required to detect/destroy these IEDs. These devices are part of the Electronic Counter Measures adopted by the state to combat insurgency.

Avantel has been involved in developing these Electronic Counter Measures. In 2002 the company was involved in developing a jamming system. They had provided Solid State Power Amplifiers (SSPA) for the jamming system. A jamming system is used to prevent the explosion of remote controlled bombs within a specified range. This is done by jamming all bands of frequency thus disabling communication within a particular area. These jammers are deployed on convoys thus jamming the remote control signals in the area which they are passing.

The drawback with the jamming system developed in 2002 was that all the bands of frequency would get jammed, thus preventing communication within the convoy. To overcome this drawback, a new project was embarked on by the Defence Electronics Research Laboratory (DLRL) to develop an advanced jamming system, whereby one frequency would not get jammed, thus enabling communication within the convoy. The frequency which will remain unjammed can be changed and this will not be known to anyone other than the convoy. Avantel is involved in this project. Avantel is providing SSPA's for this system. Trials of this system are being conducted since 2004 and are close to completion. Once this jamming system gets proven, Bharat Electronics (BEL) will undertake its production. We expect a large size order for Avantel, when this product gets taken up for production. The potential from this project could be between Rs250mn to Rs400mn.

Another Electronic Counter Measure project that Avantel is involved with is a pre-detonator project. A pre-detonator is a device which is used for countering remote controlled bombs but they work differently. A vehicle is sent on the route where the convoy is going to travel. The vehicle will have the

pre-detonating device. The device will send signals at different frequencies thus detonating the bombs in the area before the convoy arrives. A pre-detonator can only be used in areas which are not crowded.

Besides the army, other para-military forces also require these Electronic Counter Measures to combat insurgency. This will prove to be a major upside for Avantel.

**Surveillance systems- A kicker for Avantel**

In April, 2005, Avantel successfully bagged an order of Rs75.3mn from Electronics Corporation of India Ltd. (ECIL), Hyderabad. The order is to provide 2 critical subsystems for a land mounted surveillance system. The end user for this system is the army. The surveillance system is in the production phase. The surveillance system monitors all enemy civil and military communication like monitoring posts, movement of air crafts, and other communication. The purpose of this system is to create a library of electronic data on the enemy which could be useful during a war. It is a peace time surveillance system designed by Defence labs and the production is being undertaken by ECIL. Avantel is providing the Audio Frequency (AF) and Intermediate Frequency (IF) subsystems which will receive and analyze signals. We expect 60% of the revenues (Rs75.3mn) to come in FY06 and the remaining 40% by FY07.

**Development of space technology to be a strong positive**

Space technology is becoming important world-over for two primary reasons. The first is to give nations the ability to better co-ordinate warfare on earth with the help of satellites. Second, to exploit commercial benefits available in space. New space technologies have to be developed to mine the skies cost effectively for minerals and metals . With space technology attaining dual use, every country will look at dominating space. Once it is realized that all modern warfare on earth will be essentially coordinated by military satellites, every country will be in the lookout to control space.

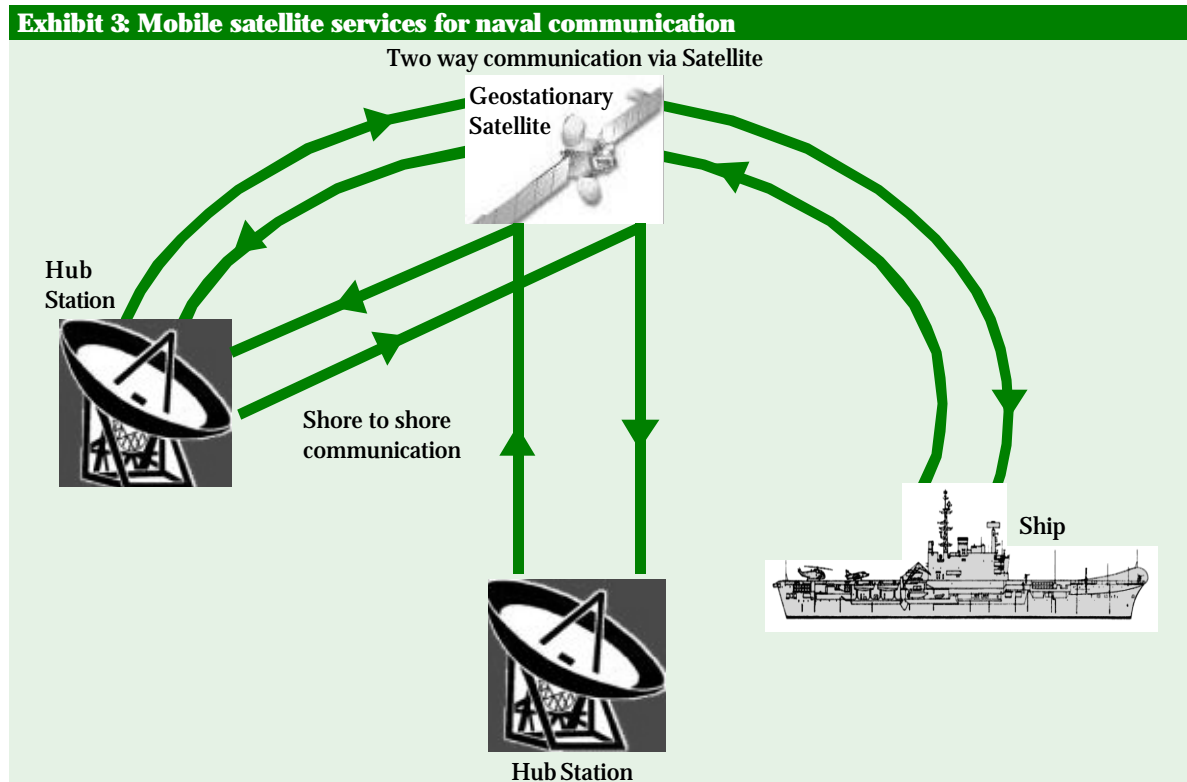
With space technology gaining immense importance, Avantel's foray into Satellite Communication (Satcom) will be a major growth driver for the company. To capitalize on the emerging satellite communication market, Avantel has forged technical collaborations with organizations like Space application Centre (SAC), Indian Space and Research Organization (ISRO) and Department of Space.

At present, Avantel is working on developing a Mobile Satellite Services (MSS) Hub to enable naval communication between Hub stations and ship through a satellite. In times of war, it is imperative for naval ships to remain undetected by the enemy and maritime communication stresses on secrecy. It is for this reason that a very secure medium of communication is required in times of emergency so that the communication signals cannot be detected. Currently, the medium of communication used for naval communication between ship and shore is High Frequency (HF) communication for long distances and Very High Frequency (VHF) and Ultra High Frequency (UHF) for short distances.

The MSS network which Avantel is working on is a far more secure system. The transmission of data is instantaneous. An order from the Indian Navy is expected for this MSS network. It is a turnkey project which includes setting up a total of seven independent hub stations and VSAT links amongst them. This project is to enable communication from:

- Ship to shore ( One Way-Transmission)
- Shore to shore ( Between hub stations)

The reporting terminals communicate with the hub through the GSAT (Geostationary) satellite therefore making communication faster and more secure. Through this medium of communication digital data can be transmitted in encrypted form. This order is expected to come through in the near future. The size of the order will be around Rs100mn to Rs110mn. The order will be executed over a period of six months. The second phase of the project consists of setting up a system to enable communication from shore to ship (Two way-Transmission and Reception) for which an order is expected. The third stage of this project will involve upgradation of the system with stabilization platforms to enable transmission and reception of voice data. In the future, a similar system will be set up for naval helicopters and reconnaissance aircrafts. Besides naval communication, this MSS system developed by Avantel can be used by the Indian Air Force for communication to airplanes and by the Indian Army for communication. The Coast Guard and the Merchant Navy have also shown interest in this system. Merchant ships can also use this system to transmit/receive weather related communication for their safety. The company also plans to export this system to Asia Pacific countries.



Source: Company and KSBL Research

**Exhibit 4: Potential for Mobile Satellite Services**

Agency	System	Time Frame
Indian Navy	Ship to Shore (Transmission) and Shore to Shore Communication - Digital data	Near term
Indian Navy	Shore to Ship Communication (Reception)-Digital data	Short term
Indian Navy	Transmission/Reception of voice data	Medium term
Indian Army	Communication from army trucks/tanks	Long term
India Air Force	Communication from air planes	Long term
Coast Guard	Ship to shore communication	Long term
Shipping Corporation of India/Fisheries	Ship to shore communication	Long term
Exports to Asia Pacific Countries	All products	Long term

Source: Company and KSBL Research

Besides Mobile Satellite Services, Avantel has also developed various subsystems like Out Door Unit (ODU), Solid State Power Amplifiers, Demodulators for application in satellite based Distance Learning and INSAT based messaging terminals integrated with Global Positioning System (GPS) for data communication from remote / inaccessible areas of India. Therefore Avantel's venture into the satellite communication arena is expected to be extremely fruitful.

**Missiles - a new area being explored**

Avantel is working in association with Defence Research Development Laboratory (DRDL) and Bharat Dynamics (BDL) for the development of telemetry products as well as other critical subsystems for missile prototypes. The telemetry products will be installed in missile prototypes to be used for field trials to track the missile and capture data on the status, health and position of the missile. This data is later analyzed so that modifications can be made in the missile systems. These telemetry products are common to all missiles of the Integrated Guided Missile Development Program (IGMDP) consisting of 5 missiles; Prithvi, Agni, Akash, Trishul and Nag. Avantel is also getting involved in the development of telemetry based ground stations. These ground stations are set up to collect data on the missile's status. This is the latest segment which Avantel has forayed into and will prove to be extremely rewarding in the long run.

**Telecom to give stability to revenues**

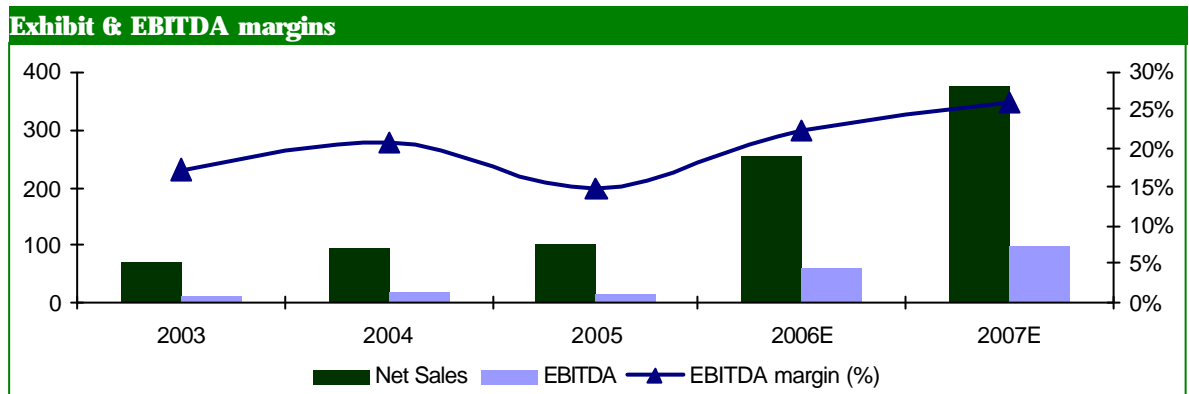
Avantel has developed a formidable presence in the commercial telecom segment. They have a broad product portfolio covering the entire range of RF/Microwave products and subsystems. With commercial telecom growing at a rapid pace, the prospects for Avantel in this segment seems extremely strong. 8 out of the 10 largest telecom companies in India use Avantel's products. They have developed extensive relationships with some of the largest equipment manufacturers. Avantel's customer base includes BSNL, Reliance, Ericsson and Nokia, Idea and Escotel. The products supplied by Avantel need to be customiized thus making them manpower intensive. This creates a potential for exports due to the price differential. Revenues from telecom will give Avantel's revenues stability as they await defence and satcom to trigger the growth in Avantel.

<b>Exhibit 5: Telecom products</b>	
<b>Product</b>	<b>Application</b>
Filters	To improve C/I and avoid interference due to strong unwanted signals from the co-located CDMA/GSM transmitters.
Repeaters & Cavity Splitters/Tappers	To extend the coverage of cellular base stations in buildings, basements and other shadow areas.
Tower Mount Boosters	Cost effective solution for extending coverage and improving the quality of service from either new or existing BTS sites.
Tower Mount Amplifiers	To extend Up-link coverage
Power Combiners and Dividers	For BTS sites operational in GSM as well as in Extended GSM bands

Source: Company

## Financials

Avantel's sales have grown from Rs67mn in FY03 to Rs101mn in FY05. 94% of sales in FY05 consisted of revenues from telecom. We expect sales growth of 151% in FY06 and 48% in FY07. A large part of future revenues will come from sale of defence products. There was an expansion in margins in FY04 to 21% as against 17% in FY03. But this did not sustain in FY05. Margins fell sharply to 15% as majority of the sales consisted of filter telecom product sales, which is a low margin product. Going forward we expect margins to firm up to 23% in FY06 and 26% in FY07 due to the increasing proportion of high margin defence revenues.



Source: Company and Karvy Estimates

Though 1QFY06 for Avantel was extremely dull, this was in line with our expectations. Majority of Avantel's revenue is based on orders. Therefore quarterly numbers tend to be lumpy. Normally for defence companies a large part of the orders come in the last two quarters. Avantel did not execute the ECIL order in Q1FY06. Execution of this order will start from Q3. The revenues this quarter came from a telecom carried forward from FY05.

**Exhibit 7: Quarter on Quarter performance**

Y/E March (Rs mn)	1QFY05	1QFY06	% Growth
Net sales	30.19	3.63	-88
Cost	28.01	5.34	-81
EBITDA	2.18	-1.70	-178
EBITDA margin (%)	7%	-47	
Other income	0.23	0.07	-68
Interest	1.24	0.96	-23
Depreciation	0.00	0.00	
Profit before tax	1.17	-2.59	-321
Tax	0.00	0.00	
Tax rate (%)	0.00	0.00	
Net profit	1.17	-2.59	-321

Source: Company

## Concerns

In spite of Avante! having developed significant business in the telecom segment which will give stability to its revenues, growth from defence and satcom is yet to come. The company is poised to execute defence orders but defence revenue is order based. This is a concern for Avante! as orders can get delayed or terminated causing lumpiness in revenues. The potential upside for Avante! from these levels is very high but delays or termination of certain orders can cause turbulence.

The jamming system for which Avante! is supplying SSPA's to DLRL is undergoing trials. Delay in the approval of the product is a cause of concern for Avante!.

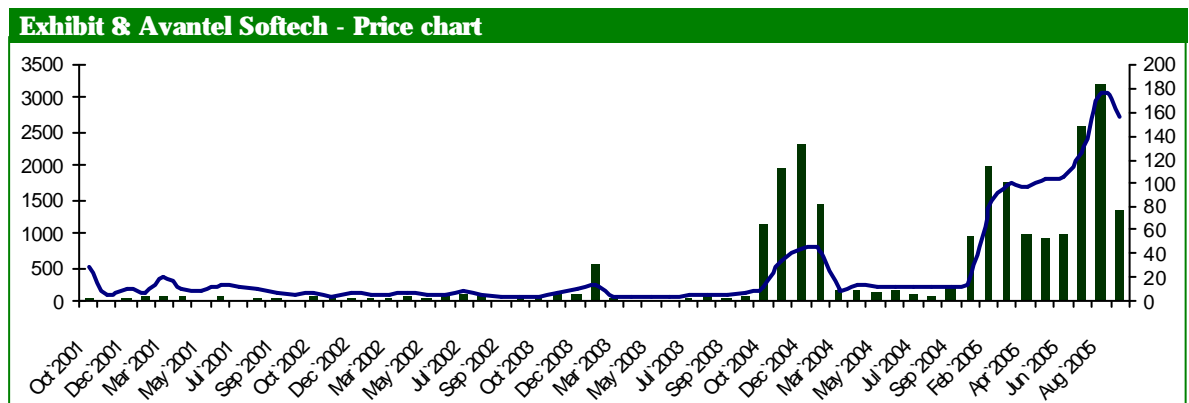
The pre-detonator which Avante! is developing is in the trial phase. If the trial phase gets unduly extended, this could raise concern for Avante!.

Another concern with all defence companies is the opacity involved with them due to which information on certain aspects may not be available.

The high top line growth in FY06 will cause working capital constraints due to high inventory and debtors as reflected by our cash flow statement. The company has arranged for additional short term finance which will solve the problem in FY07.

## Valuations

EPS growth of 186% CAGR over FY06 and FY07 is expected. The RoE of the company will strengthen from 5.7% in FY05 to 25.2% in FY06 and 29.8% in FY07. The RoCE will also grow from 8.4% in FY05 to 25% in FY06 and 34.5% in FY07. At current levels of Rs171, the stock trades at PEG of 0.14x FY06 and 0.09x FY07. We expect 50% increase in price to targeted levels of Rs230. At our price target the stock will trade at PEG of 0.19x FY06 and 0.13x FY07. We recommend **BUY** on the stock.



Source: C- Line



### Profit & loss statement

Y/E Mar (Rs Mn)	FY2003	FY2004	FY2005E	FY2006E	FY2007E
Net sales	67.0	93.1	101.0	253.8	376.5
% growth	-17.7	39.0	8.4	151.3	48.3
Raw material	19.1	31.1	35.4	82.5	122.4
Staff	17.1	19.6	25.7	58.4	82.8
Others	17.0	20.8	24.8	55.8	73.4
Any others	2.3	2.3	0.1	0.0	0.0
Total expenditure	-55.5	-73.8	-85.9	-196.7	-278.6
EBITDA	11.6	19.4	15.1	57.1	97.9
% growth	0.0	67.6	-22.1	278.2	71.4
EBITDA margin (%)	17.2	20.8	15.0	22.5	26.0
Other income	1.4	0.8	2.9	2.5	1.9
Interest	(5.6)	(6.2)	(4.8)	(11.7)	(14.9)
Gross profit	7.4	14.0	13.2	48.0	84.9
% growth	-136.0	89.8	-5.4	263.3	77.0
Depreciation	(6.8)	(5.2)	(6.0)	(8.5)	(9.0)
Profit before tax	0.6	8.8	7.2	39.4	75.8
% growth	-102.1	1481.6	-18.2	447.3	92.5
Tax	(0.1)	6.5	(1.0)	(5.9)	(25.0)
Effective tax rate (%)	24.4	(74.3)	13.9	15.0	33.0
Net profit	0.4	15.3	6.2	33.5	50.8
% growth	-101.3	3544.7	-59.6	440.3	51.7
Extraordinaries	0.00	-14.27	0	0	0
Reported net profit	0.4	1.1	6.2	33.5	50.8
% growth	-101.3	154.4	479.0	440.3	51.7
EPS (Rs)	0.1	0.2	1.2	6.5	9.9
% growth	-101.4	154.4	479.0	440.3	51.7
DPS (Rs)	0	0	0	1.5	2.1
Payout (%)	0.0	0.0	0.0	23.1	21.4

### Ratio analysis

Y/E Mar	FY2003	FY2004	FY2005E	FY2006E	FY2007E
RoCE (%)	4.1	11.7	8.4	25.0	34.4
RoE (%)	0.4	15.0	5.7	25.2	29.8
Debt/Equity (x)	0.4	0.3	0.3	0.5	0.5
Interest cover (x)	1.1	2.4	2.5	4.4	6.1
RM/Sales (%)	28.5	33.4	35.0	32.5	32.5
Staff/Sales (%)	25.5	21.1	25.4	23.0	22.0
Others/Sales (%)	25.4	22.3	24.5	22.0	19.5

### Balance sheet

Y/E Mar (Rs Mn)	FY2003	FY2004	FY2005E	FY2006E	FY2007E
Equity	51.5	51.5	51.5	51.5	51.5
Reserves	55.9	50.5	56.7	81.5	118.8
Net worth	107.5	102.1	108.3	133.1	170.3
Short-term Loans	30.3	19.0	30.0	51.0	53.1
Long-term Loans	12.5	7.1	5.1	20.1	40.1
Total Loans	42.8	26.1	35.1	71.1	93.2
<b>Liabilities</b>	<b>150.3</b>	<b>128.1</b>	<b>143.3</b>	<b>204.1</b>	<b>263.5</b>
Gross Block	111.1	98.2	102.2	106.9	112.9
Depreciation	22.9	30.3	36.3	44.8	53.9
Net Block	88.2	67.9	65.9	62.0	59.0
Capital work-in-progress	0.0	0.0	0.0	0.0	0.0
Long-term Investments	0.0	0.0	0.0	0.0	0.0
Inventories	43.9	41.3	44.4	97.7	131.8
Debtors	21.7	33.5	35.4	83.8	116.7
Cash	3.2	6.0	21.1	26.6	53.0
Other Current assets	7.3	2.2	2.0	5.1	9.4
Total Current assets	76.1	82.9	102.9	213.2	310.9
Creditors	4.6	14.9	17.0	39.6	55.1
Other current liabilities	4.1	7.8	8.5	21.3	31.6
Provisions	5.4	0.0	0.0	10.2	19.9
Total current liabilities	14.1	22.7	25.4	71.0	106.5
Net current assets	62.0	60.3	77.5	142.1	204.5
<b>Total Assets</b>	<b>150.3</b>	<b>128.1</b>	<b>143.3</b>	<b>204.1</b>	<b>263.5</b>

### Cash flow statement

Y/E Mar (Rs Mn)	FY2003	FY2004	FY2005E	FY2006E	FY2007E
EBIT	4.8	14.2	9.1	48.6	88.9
(Inc./Dec) in working capital	9.8	4.5	(2.1)	(59.1)	(35.9)
Cash flow from operations	14.5	18.7	7.0	(10.6)	52.9
Other income	1.4	0.8	2.9	2.5	1.9
Depreciation	6.8	5.2	6.0	8.5	9.0
Interest paid (-)	(5.6)	(6.2)	(4.8)	(11.7)	(14.9)
Tax paid (-)	(0.1)	6.5	(1.0)	(5.9)	(25.0)
Deferred tax	0.1	(14.6)	-	-	-
Dividends paid (-)	-	-	-	(8.7)	(13.6)
Misc exp written off)	2.3	2.3	-	-	-
Extra ordinary expenses	-	(14.3)	-	-	-
Capitalised R&D	-	(16.2)	-	-	-
Net cash from operations	19.4	(17.8)	10.1	(25.8)	10.3
Capital Expenditure (-)	(15.9)	35.1	(4.0)	(4.7)	(6.0)
Net cash after capex	3.5	17.2	6.1	(30.5)	4.3
Inc./(Dec.) in short-term borrowing	(1.7)	(11.4)	11.0	21.0	2.1
Inc./dec.) in long-term borrowing	(2.5)	(5.4)	(2.0)	15.0	20.0
Inc./dec.) in borrowings	(4.2)	(16.7)	9.0	36.0	22.1
Cash from financial activities	(4.2)	(16.7)	9.0	36.0	22.1
Others	(0.2)	2.3	-	-	-
Opening cash	4.1	3.2	6.0	21.1	26.6
Closing cash	3.2	6.0	21.1	26.6	53.0
Change in cash	(0.9)	2.8	15.1	5.5	26.4

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Stock Ratings	Absolute Returns	Stock Ratings	Absolute Returns
Buy	: > 25%	Market Performer	: 0 - 15%
Out Performer	: 16 - 25%	Under Performer	: < 0%

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