

## Personal Computer (Pentium – IV)

PRODUCT CODE (ASICC)	:	78304
QUALITY AND STANDARDS	:	N.A.
PRODUCTION CAPACITY	:	Qty. : 360 Nos. (per annum) Value : Rs. 1,44,00,000
YEAR OF PREPARATION	:	2002–2003
PREPARED AND UPDATED BY	:	Small Industries Service Institute Kurla Andheri Road, Sakinaka, Mumbai And Office of the Development Commissioner (Small Scale Industries), Electronics and Electrical Division, 7th Floor, Nirman Bhavan, New Delhi-110011.

### INTRODUCTION

Personal Computers are widely used these days in office automation in Business/trade, Industries, Banks, Insurance Establishments, Hospitals, Hotels, Railway, Air-lines and Transport services etc.

Personal Computer hardware consists of CPU, Memory, Direct memory access, Peripheral controllers and interfaces, Floppy disk drives and hard disk drives. The peripherals consists of Keyboard, CRT Monitor, Printer, Modem and Mouse etc. and connected to the main PC through cables and interfaces. Switched Mode Power Supply (SMPS) are used to power the personal computer for different dc voltage: +5V, -5V, +12V and -12V. The SMPS is housed in the PC cabinet . The CRT Monitor and Printer have their own power supply units.

### MARKET POTENTIAL

The market for personal computer is expanding day by day due to rapid computerisation of offices for accounts, inventory, sales, correspondence and communication etc., in business/trade, industry, banks, insurance establishments, hotels, tourism sector, hospitals etc., and also due to rapid computerisation of reservations in railways, air-lines and other transport services.

The demand for personal computer (PCs) continues to grow and will continue to account for a large share of the total computer and peripherals spending in India. According to the Manufacturers Association of Information Technology (MAIT), during 2000-01, more than 1.88 million desktops were sold in India, registering

a 34 per cent increase over the previous year. Over 135 small, medium and large firms manufacture computer in India. Many multinational companies such as HP, IBM, Compaq and ACER have a strong presence and manufacturing facilities in India. Dell has a marketing, sales and service operation in the country, providing PCs to the market from its facilities in Malaysia. Toether, the MNC brands have garnered a 27 per cent market share. Local Indian brands have a market share of 20 per cent, with the 53 per cent balance dominated by PCs assembled by Small Indian firms. The small manufacturers have to face tough competition from multinationals in terms of price, quality supply schedules and after sales services.

### BASIS AND PRESUMPTIONS

- i) The basis for calculation of production capacity has been taken on single shift basis on 75% efficiency.
- ii) The maximum capacity utilization on single shift basis for 300 days a year. During first year and second year of operations the capacity utilization is 60% and 80% respectively. The unit is expected to achieve full capacity utilization from the third year onwards.
- iii) The salaries and wages, cost of raw materials, utilities, rents, etc. are based on the prevailing rates in and around Mumbai. These cost factors are likely to vary with time and location.
- iv) Interest on term loan and working capital loan has been taken at the rate of 16% on an average. This rate may vary depending upon

the policy of the financial institutions/agencies from time to time.

- v) The cost of machinery and equipments refer to a particular make/model and prices are approximate.
- vi) The break-even point percentage indicated is of full capacity utilization.
- vii) The project preparation cost etc. whenever required could be considered under pre-operative expenses.
- viii) The essential production machinery and test equipment required for the project have been indicated. The unit may also utilize common test facilities available at Electronics Test and Development Centres (ETDCs) and Electronic Regional Test Laboratories (ERTLs) set up by the State Governments and STQC Directorate of the Department of Information Technology, Ministry of Communication and Information Technology, to manufacture products conforming to Bureau of Indian Standards.

### IMPLEMENTATION SCHEDULE

The major activities in the implementation of the project has been listed and the average time for implementation of the project is estimated at 12 months:

<i>Sl. No.</i>	<i>Name of Activity</i>	<i>Period in Months (Estimated)</i>
1.	Preparation of project report	1
2.	Registration and other formalities	1
3.	Sanction of loan by financial institutions	3

Sl. No.	Name of Activity	Period in Months (Estimated)
4.	Plant and Machinery	
	(a) Placement of orders	1
	(b) Procurement	2
	(c) Power connection/ Electrification	2
	(d) Installation/Erection of machinery/Test Equipment	2
5.	Procurement of raw materials	2
6.	Recruitment of Technical Personnel etc.	2
7.	Trial production	11
8.	Commercial production	12

### Notes

1. Many of the above activities shall be initiated concurrently.
2. Procurement of raw materials commences from the 8th month onwards.
3. When imported plant and machinery are required, the implementation period of project may vary from 12 months to 15 months.

## TECHNICAL ASPECTS

### Process of Manufacture

The manufacture of personal computer involves the assembly of Electronics and Electromechanical sub-assemblies, peripherals and integrating them into a compact unit. As per the design the motherboard, VGA card (Display card) are procured/assembled depending upon the volume of production. The other sub-assemblies Hard disk drives, floppy disk drive, cabinet with SMPS are procured from outside alongwith the peripherals i.e. Monitor (colour) Computer Keyboard, mouse etc. The mother-board alongwith other subassemblies are mounted in the

cabinet and the interconnection done. The completed assembly i.e. compact unit is tested for various performance parameters by the help of dedicated software.

The tested units are then packed well in cardboard packing cases to withstand shock and vibration during transportation and handling.

### Quality Control and Standards

Intel pentium IV processor (1.9 GHZ)  
128 MB-RAM

AGP-8MB (VGA memory on board)  
Hard Disk Drive 40 GB

Key Board (111 Key)  
36 cm (14") colour monitor (Digital)

Modem Inbuilt  
56 Kbps

Scroll Mouse  
Window 2000 XP Home edition 48/52x  
CD ROM

### Production Capacity (per annum)

Quantity	Value (Rs.)
360 Nos.	1,44,00,000

Motive Power 5KVA (Approx.)

### Pollution Control

The Govt. accords utmost importance to control environmental pollution. The small-scale entrepreneurs should have an environmental friendly attitude and adopt pollution control measures by process modification and technology substitution.

India having acceded to the Montreal Protocol in Sept. 1992, the production and use of Ozone Depleting Substances (ODS) like Chlorofluoro Carbon (CFC), Carbon Tetrachloride, Halons and Methyl Chloroform etc. need to be phased out

immediately with alternative chemicals/solvents. A notification for detailed Rules to regulate ODS phase out under the Environment Protection Act, 1986 have been put in place with effect from 19th July 2000.

The following steps are suggested which may help to control pollution in electronics industry wherever applicable:

- i) In electronic industry fumes and gases are released during hand soldering/wave soldering/Dip soldering, which are harmful to people as well as environment and the end products. Alternate technologies may be used to phase out the existing polluting technologies. Numerous new fluxes have been developed containing 2-10% solids as opposed to the traditional 15-35% solids.
- ii) Electronic industry uses CFC, Carbon Tetrachloride and Methyl Chloroform for cleaning of printed circuit boards after assembly to remove flux residues left after soldering, and various kinds of foams for packaging.

Many alternative solvents could replace CFC-113 and Methyl Chloroform in electronics cleaning. Other Chlorinated solvents such as Trichloroethylene, Perchloroethylene and Methylene Chloride have been used as effective cleaners in electronics industry for many years. Other organic solvents such as Ketones and Alcohols are effective in removing both solder fluxes and many polar contaminants.

### Energy Conservation

With the growing energy needs and shortage coupled with rising energy

cost, a greater thrust in energy efficiency in industrial sector has been given by the Govt. of India since 1980s. The Energy Conservation Act, 2001 has been enacted on 18th August 2001, which provides for efficient use of energy, its conservation and capacity building of Bureau of Energy Efficiency created under the Act.

The following steps may help for conservation of electrical energy:

- i) Adoption of energy conserving technologies, production aids and testing facilities.
- ii) Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation.
- iii) Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and desoldering stations.
- iv) Periodical maintenance of motors, compressors etc.
- v) Use of power factor correction capacitors. Proper selection and layout of lighting system; timely switching on-off of the lights; use of compact fluorescent lamps wherever possible etc.

## FINANCIAL ASPECTS

### A. Fixed Capital

#### (i) Land and Building

Built up area	200 Sq. Mtrs.
Office, Stores	50 Sq. mtrs.
Assembly and Testing	150 Sq. mtrs.
Rent Payble/month	Rs. 20,000

## (ii) Plant and Machinery, Testing Equipments

Description	Ind./ Imp	Qty. Nos.	Amount (Rs.)
1. Oscilloscope (0-100 MHZ) (dual trace storage type)	Ind.	1	80,000
2. Computer testing system (consisting of CPU, Monitor, Keyboard, FDD, HDD, Communication Driver, Modem, Mouse, Printer and dedicated test software)	Ind.	2	1,00,000
3. LCR-Q Meter (Digital)	Ind.	1	15,000
4. D.C. Power Supply 30V, 2A	Ind.	3	10,000
5. 4½ digit digital Multimeter	Ind.	2	17,000
6. Analog Multimeter	Ind.	5	5,000
	Total		2,27,000

## (iii) Other Fixed Assets

7. Office equipment,			27,000
8. Furniture and Working tables			40,000
9. Tools, Jigs, Fixtures, Soldering Iron/Stations, IC Insertor, extractor etc.			30,000
10. Electrification charges @ 10% of the cost of plant and machinery			22,700
11. Pre-operative Expenses			20,000
	Total		1,39,700
	G. Total		3,66,700
	or Say		3,67,000

## B. Working Capital (per month)

## (i) Staff and Labour

Sl. No.	Designation	No.	Salary (Rs.)	Total (Rs.)
1.	Manager	1	6,000	6,000
2.	Sales and Service Engineer	1	3,000	3,000
3.	Supervisor	1	2,500	2,500
4.	Accountant	1	2,000	2,000
5.	Clerk/Typist	1	1,500	1,500

Sl. No.	Designation	No.	Salary/ month (Rs.)	Total (Rs.)
6.	Peon	1	1,000	1,000
7.	Watchman		1,000	1,000
8.	Skilled Workers	3	2,500	7,500
9.	Unskilled workers	2	2,000	4,000
	Total			28,500
	Add Perquisites @ 15% of salary			4,275
	Total			32,775
	or Say			33,000

## (ii) Raw Material Requirement (per month)

Particulars	Ind/ Imp.	Unit	Cost/ (Rs.)
1. Intel Pentium IV Processors 1.9 GHz/Chipset/845 GL with Mother Board	Imp.		15,000
2. Monitor Colour (14") SVGA	Ind.		5,500
3. Key Board (111 Keys)	Ind.		700
4. 40 GB Hard Disk Drive	Imp.		4,500
5. 52 × CD ROM	Imp.		1,500
6. Modem Internet Card	Ind.		500
7. 10/100 Ether Net Card	Ind.		700
8. 1.44 MB Floppy Disk Drive	Ind.		500
9. Scroll Mouse 3 button	Ind.		500
10. SMPS with Cabinet and other accessories	Ind.		1,500
11. Cables and Power Cords	LS		300
12. Consumables (Solders and Packing Materials)	LS		100
13. Multimedia Speakers	Ind.		1,000
	Total		32,300

Cost of Raw Materials for 30 Units (per month) Rs. 9,69,000

Note: The quantity and quality of raw materials varies with the design requirement and features of Personal Computer.

(iii) Utilities (per month)		(Rs.)
Power		6,000
Water		500
	Total	6,500

(iv) Other Contingent Expenses (per month) (Rs.)	
1. Rent	20,000
2. Postage and stationery	2,000
3. Telephone/Telex/Fax charges	2,000
4. Repair and maintenance	2,000
5. Transport and conveyance charges	5,000
6. Advt. and publicity	7,000
7. Insurance and taxes	1,000
8. Miscellaneous expenditure	5,000
<b>Total</b>	<b>44,000</b>

(v) Total Recurring Expenditure (per month)  
(i + ii + iii + iv) Rs. 10,52,500

### C. Total Capital Investment

Fixed Capital	Rs. 3,67,000
Working Capital on 3 months basis	Rs. 31,57,500
<b>Total</b>	<b>Rs. 35,24,500</b>

## FINANCIAL ANALYSIS

(1) Cost of Production (per annum) (Rs.)	
Total recurring expenditure	1,26,30,000
Depreciation on machinery and equipment @ 10 %	22,700
Depreciation on tools, jigs and fixtures @ 25%	7,500
Depreciation on office equipment, furniture @ 20%	13,400
Interest on total capital investment @ 16%	5,63,920
<b>Total</b>	<b>1,32,37,520</b>
<b>or Say</b>	<b>1,32,37,500</b>

(2) Turnover (per annum)

Item	Qty. (Nos.)	Rate/ Unit (Rs.)	Total (Rs.)
Personal Computer Pentium IV (1.9 GHz)	360	40,000	1,44,00,000

(3) Profit (per annum) (Before Taxes) Rs. 11,62,500

(4) Net Profit Ratio =  $\frac{\text{Profit (per annum)} \times 100}{\text{Sales (per annum)}}$   
 $= \frac{11,62,500 \times 100}{1,44,00,000}$   
 $= 8.07\%$

(5) Rate of Return =  $\frac{\text{Profit per annum} \times 100}{\text{Total capital investment}}$   
 $= \frac{11,62,500 \times 100}{35,24,500}$   
 $= 32.98\%$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
Rent	2,40,000
Depreciation on machinery and equipment @ 10 %	22,700
Depreciation on tools, jigs and fixtures @ 25%	7,500
Depreciation on office equipment, furniture @ 20%	13,400
Interest on total capital investment @ 16%	5,63,920
Insurance and Taxes	12,000
40% of Salaries and wages	1,58,400
40% of other contingent expenses and utilities (excluding rent and insurance)	1,41,600
<b>Total</b>	<b>11,59,520</b>
<b>or Say</b>	<b>11,59,500</b>

B.E.P.

=  $\frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{Profit}}$   
 $= \frac{11,59,500 \times 100}{11,59,500 + 11,62,500}$   
 $= 49.93\%$

### Additional Information

- (a) The Project Profile may be modified/tailored to suit the individual entrepreneurship qualities/capacity, production programme and also to suit the locational characteristics, wherever applicable.
- (b) The Electronics Technology is undergoing rapid strides of change and there is need for regular monitoring of the national and international technology scenario. The unit may, therefore, keep abreast with the new

technologies in order to keep them in pace with the developments for global competition.

- (c) Quality today is not only confined to the product or service alone. It also extends to the process and environment in which they are generated. The ISO 9000 defines standards for Quality Management Systems and ISO 14001 defines standards for Environmental Management System for acceptability at international level. The unit may therefore adopt these standards for global competition.
- (d) The margin money recommended is 25% of the working capital requirement at an average. However, the percentage of margin money may vary as per bank's discretion.

Addresses of Machinery, Computer Peripheral and Raw Material/Component Suppliers

#### *Testing Equipments*

1. M/s. Applied Electronics Ltd.  
A-5, Wagle Indl. Estate,  
Thane, Mumbai - 4
2. M/s. Peico Electronics and Electrical Ltd.  
Shivasagar Estate, Block-A,  
Dr. Annie Besant Road,  
Mumbai-12
3. M/s. BPL (India)  
84, M. G. Road,  
Bangalore-1
4. M/s. Agronic Instruments Pvt. Ltd.  
201, Shiva-Shakti Industrial  
Estate, Mumbai-86

5. M/s. Systronics  
89-92, Indl. Area,  
Naroda-382330
6. M/s. Electronics Trade and Technology Dev. Corp. Ltd.  
15/48, Malcha Marg,  
New Delhi-21
7. M/s. Noble Electronics  
354, Lajpat Rai Market,  
Delhi-6

#### *Soldering Equipment and Circuit Aids*

1. M/s. Sysco Associates  
30/106, (New No. 234),  
11th Main, Malleswaram,  
Bangalore-3
2. M/s. Navanidhi Electronics (P) Ltd.  
1-60/1, Snehapuri,  
Nacharam, Hyderabad-7
3. M/s. India Associates  
16, Rest House Crescent,  
27-B, Chandigarh-19
4. M/s. Bergen Associates Pvt. Ltd.  
1082, Sector-27-B,  
Chandigarh-19

#### *Raw Material and Component Suppliers*

1. M/s. Electronics Trade and Technology Dev. Corp. Ltd.  
15/8, Malcha Marg, Chanakyapuri,  
New Delhi-21
2. M/s. OEN Connectors Ltd.  
Vyattila, P.B. No.2,  
Cochin-19
3. M/s. Micropack Ltd.  
Plot No. 16, Jagani Indl. Area,  
Anekal T. J. Bangalore-562106
4. M/s. Amar Radio Corpn.,  
11/1, Thiglar Periyanna Lane,  
SJP Road, Bangalore-2.

5. M/s. Tomson Electronics  
Pulickkal Buildings, Pallimukku,  
M. G. Road, Cochin-68216
6. M/s. Saini Electronics,  
Pushpadant Nivas, 3,  
Chuman Lane,  
Dr. D. Bhadkamkar Marg,  
Mumbai-7
7. M/s. Bangalore Electronics  
No. 124, Sadarpatrapa Road,  
Bangalore-2
8. M/s. Southern Electronics  
No. 113, Sadarpatrapa Road,  
Bangalore-2.
4. M/s. Namtech Systems Pvt. Ltd.  
35, Decosta Square,  
St. Thomas Town,  
Bangalore-84.
5. M/s. Jairamdas and Sons Pvt. Ltd.  
Mittal Towers,  
M. G. Road, Bangalore.
6. M/s. MCL Peripherals  
158, Arcot Road,  
Vadapalani, Chennai-2
7. M/s. Wipro Peripherals Division  
40/1, Levelle Road,  
Bangalore-1

*Imported Components and Computer Peripherals*

1. M/s. General Electronics  
19, 5th Floor, Tardeo Air  
Conditioned Market, Mumbai-34
2. M/s. Bakumbhai Ambalal  
(Electronics Dept.)  
Kaiser-I, Hind Building,  
Ballard Estate,  
Mumbai-38
3. M/s. Shilpa International  
107, Park Lane,  
Secunderabad-3
8. M/s. Hewlett Packard India Ltd.  
Embassy Point, 150,  
Infantry Road, Bangalore-1.
9. M/s. VXL Instruments Pvt. Ltd.  
159, 7th Main,  
I-Block, Koramangala,  
Bangalore-34.
10. M/s. TVS Electronics  
Tumkar, Karnataka
11. M/s. Microtek International Ltd.  
B-603, Emerald Appts.  
Parcy Panchayat Road,  
Andheri (E), Mumbai-69.