

# The Yearbook of World Electronics Data

Volume 4 2011/2012

East Europe  
& World Summary

Components  
Computers  
Consumer  
Control and Instrumentation  
Medical and Industrial  
Office Equipment  
Radio Communications  
Telecommunications



## **Yearbook of World Electronics Data Volume 4 2011/2012 – An Overview of Electronics Production & Markets in Western Europe**

### **Introduction**

Following the sharp downturn in the European and global electronics industry at the end of 2008 and in the first half of 2009 the market has recovered. Led initially by the emerging markets the recovery has gained momentum with the industry showing strong growth in all regions. However, in the final months of 2010 there were signs that growth was slowing and the outlook for 2011/2012 will now depend on a sustained growth in both the European and global economy.

In Central and Eastern Europe, the electronics industry has benefited from the transfer of Volume production from Western Europe and the inward investment by Asian manufacturers looking to establish a production base in close proximity to the key European markets. In the future it is anticipated that the region will also benefit from the transfer of production of lower volume products in areas such as industrial, medical, high-end communications and automotive.

To take advantage of these opportunities will require a clear understanding of the current structure of the electronics industry, how it has developed on a country and regional level and how it fits globally.

### **Yearbook of World Electronics Data - Volume 4 East Europe & World Summary**

Published since 1991 the Volume 4 of the Yearbook of World Electronics Data provides:

- A single source solution allowing you to track the electronics industry in 12 countries in Central & Eastern Europe.
- 12 major product groups.
- Market and production forecasts.
- Unique world summary of production (2006-2009) and market (2006-2012) data for 53 countries.
- CD-option allows you to manipulate the data quickly and easily: produce your own subsets or summaries of the data, create your own forecasts or cut and paste the data into your own in-house reports and presentations.

### **Who will benefit**

The Yearbook is essential research for all areas of the electronics industry including:

- Distributors and manufacturers of electronic components and materials.
- Suppliers of electronic production equipment.
- OEMs.
- EMS Providers.
- Government, including investment organizations.
- Financial and industry analysts.
- Academic institutes & universities tracking developments in the electronics industry.

## **The Yearbook of World Electronics Data**

The Yearbook of World Electronics Data series presents market and production statistics for the GLOBAL electronics industry. Available in four published volumes covering 53 countries and 12 major product groups, the yearbook is used in the formulation of business and market planning, in tracking trends based on a clear understanding on how the industry has developed historically and to provide a basis for medium and long-term forecasting.

### **53 country coverage, 12 major product groups**

... comparable **country by country** and **product by product**.

### **Methodology**

The Yearbooks highlight market trends and opportunities and offer corroborative evidence for individual research. Each new edition is fully revised and updated. Trade statistics are analysed in detail, with over 500 separate categories being employed. Production statistics are collected from Government and Manufacturer's Association sources where these are available. Extensive use is also made of research reports, company reports, news items and work by other consultants to supplement and cross check the official and semi-official sources.

Markets are forecast in real terms for the next five years, with production forecast for the next two years, using constant exchange rates and excluding inflation. These are based on our extensive knowledge of the historical performance of each product, the general economic outlook and the major growth influencing factors.

## **2011 Series**

### **Volume 1 2011 West Europe**

Synopsis: Economic Overview; Electronics Market Overview; Imports 2008-2009; Exports 2008-2009; Production Data 2008-2011; Market Data 2008-2014

16 Country Coverage

Austria; Belgium; Denmark; Finland; France; Germany; Greece; Ireland; Italy; Netherlands; Norway; Portugal; Spain; Sweden; Switzerland; UK

Publication Data: February 2011

### **Volume 2 2011 America, Japan, Asia Pacific**

Synopsis: Economic Overview; Electronics Market Overview; Imports 2008-2009; Exports 2008-2009; Production Data 2008-2011; Market Data 2008-2014

16 Country Coverage

Australia; Brazil; Canada; Hong Kong; India; Indonesia; Israel; Japan; Malaysia; Philippines; Singapore; South Africa; South Korea; Taiwan Thailand; USA

Publication Data: May 2011

### **Volume 3 2010/2011 Emerging Markets**

Synopsis: Economic Overview; Electronics Market Overview; Imports 2007-2008; Exports 2007-2008; Production Data 2007-2010; Market Data 2007-2013

9 Country Coverage

China; Egypt; Mexico; New Zealand; Puerto Rico; Saudi Arabia; Turkey; Venezuela; Vietnam

Publication Data: August 2010

### **Volume 4 2011/2012 East Europe**

Synopsis: Economic Overview; Electronics Market Overview; Imports 2008-2009; Exports 2008-2009; Production Data 2008-2011; Market Data 2008-2014

53 Country World Summary covering production data 2008-2011 and market data for 2008-2014

12 Country Coverage

Bulgaria; Croatia; Czech Republic; Estonia; Hungary; Lithuania; Poland; Romania; Russia; Slovakia; Slovenia; Ukraine

Publication Data: August 2011

For each country production and market data is supplied for the following product groups:

- Computers
- Consumer – Video; Audio; Personal
- Control & Instrumentation
- Medical & Industrial
- Office Equipment
- Radio Communications
- Telecommunications
- Components – Passive Components; Semiconductors; Other Components

### **Related Products & Services**

#### **European Electronic Markets Forecast**

Market data is only one part of the equation when analyzing the European electronics industry. Updated monthly, *European Electronic Markets Forecast* (EEMF) enables you to track with minimum time and cost, the key issues and opportunities impacting the European electronics industry. From originally researched articles to the latest company developments and market analysis EEMF is your virtual “Research Analyst” utilizing over 30 years of industry and market research experience to provide you both in hardcopy and electronic formats not only reliable but objective analysis and news on the European and global electronics industry.

#### **Summary of Contents**

**Market Analysis:** Up-to-the-minute analysis of the key sectors of the European and Global electronics industry

**Industry News:** The latest industry and company news split by:

- Business
- Finance
- Mergers & Acquisitions
- Research/Design
- Communications
- Automotive
- Distribution
- Production
- Semiconductors
- Renewable Energy

**Asia Pacific Electronics:** Highlighting the growing importance of Asia on the global electronics industry, EEMF provides a monthly summary of key developments within the region.



### **Custom Research**

To meet your specific research requirements and to ensure you maximize your research budget Reed Electronics Research can provide individual country reports or customized product data through its emarketforecasts research service. Reports can be provided on any of the 53 countries covered in the Yearbook database with the flexibility to provide regional reports outside of the published titles.

### **Historical Data**

The ability to have access to data over an extended time line is increasingly important in looking at how the industry has developed and to input into various forecasting models. To meet this demand we can provide historical data in spreadsheet format for all 53 countries covered in the Yearbook database.

Data for the majority of countries covered in Volume 1 & 2 dates back to 1985 while for the Volumes 3 and 4 we provide data back to 1995.

In addition to the full database we also provide a global summary for the 53 countries back to 1995. The data is formatted to allow the user to analyze the data using pivot tables.

**For additional information on the above publications or Reed Electronics Research's complete range of research products please contact:**

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## SAMPLE DATA

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## 2.5 SUMMARY OF WORLD PRODUCTION 2009

US\$ Millions

| Country      |               |              |                 |                      |                      |                     |               |               | TOTAL          |
|--------------|---------------|--------------|-----------------|----------------------|----------------------|---------------------|---------------|---------------|----------------|
|              | EDP           | Office Equip | Control & Instr | Medical & Industrial | Radio Comms & Radar* | Telecomm-unications | Consumer      | Compo-nents   |                |
| Australia    | 825           | 37           | 842             | 236                  | 915                  | 683                 | 71            | 413           | 4022           |
| Austria      | 455           | 1            | 761             | 354                  | 217                  | 372                 | 16            | 1289          | 3466           |
| Belgium      | 1225          | 0            | 588             | 432                  | 352                  | 406                 | 67            | 688           | 3757           |
| Brazil       | 17663         | 246          | 1374            | 295                  | 5600                 | 920                 | 2786          | 2359          | 31244          |
| Bulgaria     | 67            | 22           | 52              | 50                   | 25                   | 26                  | 35            | 62            | 339            |
| Canada       | 2311          | 78           | 1855            | 1215                 | 3592                 | 1342                | 78            | 524           | 10996          |
| China        | 194000        | 2820         | 6550            | 5300                 | 62000                | 22000               | 51875         | 65575         | 410120         |
| Croatia      | 48            | 5            | 69              | 54                   | 25                   | 86                  | 0             | 102           | 389            |
| Czech        | 6149          | 29           | 409             | 175                  | 394                  | 722                 | 2873          | 1168          | 11919          |
| Denmark      | 164           | 0            | 966             | 921                  | 221                  | 159                 | 99            | 629           | 3159           |
| Egypt        | 37            | 5            | 7               | 9                    | 66                   | 34                  | 124           | 39            | 320            |
| Estonia      | 68            | 1            | 100             | 49                   | 480                  | 27                  | 0             | 77            | 802            |
| Finland      | 251           | 0            | 877             | 552                  | 5944                 | 1084                | 4             | 719           | 9432           |
| France       | 1844          | 359          | 4022            | 1672                 | 11342                | 2434                | 634           | 5367          | 27675          |
| Germany      | 9482          | 394          | 19733           | 7399                 | 4052                 | 2922                | 1844          | 19805         | 65631          |
| Greece       | 179           | 29           | 69              | 34                   | 207                  | 181                 | 3             | 59            | 760            |
| Hong Kong    | 266           | 77           | 55              | 189                  | 192                  | 165                 | 643           | 774           | 2361           |
| Hungary      | 4161          | 1            | 746             | 337                  | 5130                 | 308                 | 3678          | 1707          | 16068          |
| India        | 2918          | 101          | 1393            | 466                  | 4352                 | 1430                | 3591          | 1864          | 16115          |
| Indonesia    | 2058          | 149          | 142             | 329                  | 638                  | 221                 | 3311          | 3436          | 10283          |
| Ireland      | 5788          | 18           | 567             | 1834                 | 183                  | 211                 | 20            | 3723          | 12345          |
| Israel       | 1080          | 16           | 655             | 1811                 | 1093                 | 1555                | 32            | 2023          | 8265           |
| Italy        | 3365          | 13           | 3654            | 1310                 | 1699                 | 1806                | 241           | 3547          | 15635          |
| Japan        | 24817         | 1181         | 7699            | 6444                 | 26187                | 6319                | 27218         | 80105         | 179970         |
| Lithuania    | 26            | 7            | 59              | 31                   | 33                   | 28                  | 72            | 61            | 317            |
| Malaysia     | 15892         | 170          | 1459            | 364                  | 2720                 | 1122                | 5348          | 19084         | 46158          |
| Mexico       | 10120         | 85           | 1700            | 754                  | 9400                 | 2100                | 18241         | 4028          | 46428          |
| Netherlands  | 2037          | 402          | 2179            | 2748                 | 478                  | 317                 | 96            | 1381          | 9637           |
| N Zealand    | 191           | 6            | 140             | 37                   | 156                  | 59                  | 9             | 90            | 688            |
| Norway       | 129           | 0            | 621             | 147                  | 394                  | 350                 | 0             | 415           | 2055           |
| Philippines  | 4545          | 91           | 162             | 61                   | 577                  | 54                  | 264           | 6309          | 12062          |
| Poland       | 488           | 30           | 377             | 140                  | 411                  | 880                 | 4754          | 512           | 7592           |
| Portugal     | 375           | 1            | 53              | 78                   | 159                  | 138                 | 871           | 862           | 2536           |
| Puerto Rico  | 765           | 8            | 180             | 870                  | 190                  | 60                  | 13            | 320           | 2406           |
| Romania      | 135           | 60           | 146             | 131                  | 371                  | 317                 | 54            | 172           | 1386           |
| Russia       | 688           | 92           | 414             | 312                  | 338                  | 180                 | 1388          | 564           | 3976           |
| Saudi Arabia | 182           | 3            | 184             | 131                  | 96                   | 99                  | 9             | 68            | 772            |
| Singapore    | 13844         | 164          | 983             | 732                  | 3025                 | 432                 | 569           | 28729         | 48477          |
| Slovakia     | 546           | 8            | 97              | 191                  | 120                  | 129                 | 4569          | 224           | 5884           |
| Slovenia     | 50            | 2            | 176             | 57                   | 121                  | 152                 | 20            | 187           | 765            |
| South Africa | 271           | 7            | 131             | 101                  | 178                  | 348                 | 137           | 293           | 1466           |
| South Korea  | 14157         | 206          | 437             | 1713                 | 30636                | 918                 | 4042          | 41909         | 94018          |
| Spain        | 1173          | 14           | 348             | 387                  | 528                  | 1063                | 702           | 1909          | 6124           |
| Sweden       | 113           | 0            | 1276            | 240                  | 2479                 | 2677                | 41            | 898           | 7724           |
| Switzerland  | 388           | 34           | 2914            | 1578                 | 411                  | 317                 | 3539          | 1527          | 10708          |
| Taiwan       | 3640          | 11           | 272             | 5662                 | 5740                 | 598                 | 1806          | 25111         | 42841          |
| Thailand     | 13539         | 52           | 269             | 145                  | 824                  | 999                 | 4056          | 7877          | 27760          |
| Turkey       | 385           | 20           | 70              | 325                  | 170                  | 225                 | 2057          | 176           | 3428           |
| UK           | 2017          | 129          | 4665            | 1838                 | 7715                 | 1044                | 308           | 4165          | 21881          |
| Ukraine      | 135           | 9            | 121             | 56                   | 322                  | 173                 | 25            | 179           | 1020           |
| USA          | 46509         | 2772         | 37765           | 27982                | 68680                | 12057               | 2128          | 52312         | 250206         |
| Venezuela    | 180           | 17           | 60              | 44                   | 70                   | 50                  | 29            | 88            | 538            |
| Vietnam      | 1045          | 27           | 60              | 123                  | 101                  | 144                 | 1032          | 552           | 3084           |
| <b>TOTAL</b> | <b>412785</b> | <b>10011</b> | <b>110507</b>   | <b>78442</b>         | <b>271349</b>        | <b>72444</b>        | <b>155419</b> | <b>396055</b> | <b>1507011</b> |

## SUMMARY OF EAST EUROPE PRODUCTION 2008

Table 3.4.3

| Country      | \$M          | \$M          | \$M             | \$M                  | \$M                  | \$M                 | \$M          | \$M         | \$M          |
|--------------|--------------|--------------|-----------------|----------------------|----------------------|---------------------|--------------|-------------|--------------|
|              | EDP          | Office Equip | Control & Instr | Medical & Industrial | Radio Comms & Radar* | Telecomm-unications | Consumer     | Compo-nents | TOTAL        |
| Bulgaria     | 70           | 24           | 55              | 51                   | 35                   | 28                  | 37           | 67          | 367          |
| Croatia      | 50           | 5            | 70              | 55                   | 26                   | 90                  | -            | 107         | 403          |
| Czech        | 7150         | 30           | 430             | 180                  | 480                  | 820                 | 2940         | 1247        | 13277        |
| Estonia      | 75           | 1            | 105             | 47                   | 600                  | 30                  | -            | 82          | 940          |
| Hungary      | 4838         | 1            | 777             | 334                  | 5338                 | 350                 | 3753         | 1811        | 17203        |
| Lithuania    | 30           | 7            | 60              | 27                   | 35                   | 30                  | 80           | 65          | 334          |
| Poland       | 452          | 31           | 385             | 137                  | 467                  | 1000                | 5002         | 544         | 8017         |
| Romania      | 150          | 65           | 150             | 132                  | 350                  | 360                 | 56           | 183         | 1446         |
| Russia       | 800          | 100          | 450             | 330                  | 375                  | 200                 | 1625         | 620         | 4500         |
| Slovakia     | 650          | 9            | 100             | 197                  | 130                  | 140                 | 5555         | 240         | 7021         |
| Slovenia     | 55           | 2            | 180             | 55                   | 130                  | 165                 | 20           | 204         | 811          |
| Ukraine      | 150          | 10           | 130             | 58                   | 350                  | 190                 | 27           | 195         | 1110         |
| <b>TOTAL</b> | <b>14470</b> | <b>285</b>   | <b>2892</b>     | <b>1602</b>          | <b>8316</b>          | <b>3403</b>         | <b>19095</b> | <b>5366</b> | <b>55428</b> |

## SUMMARY OF EAST EUROPE MARKETS 2008

Table 3.5.3

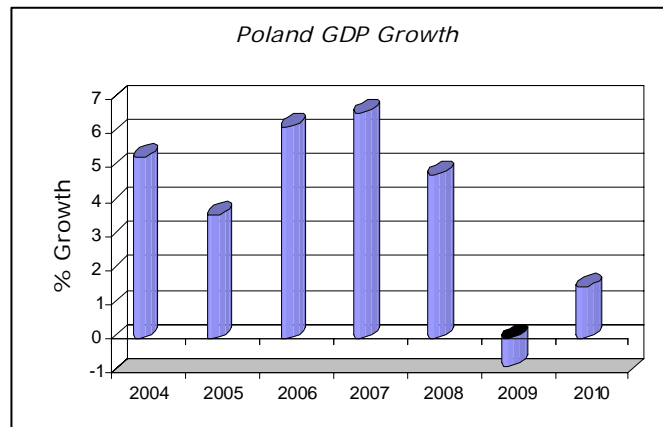
| Country      | \$M          | \$M          | \$M             | \$M                  | \$M                  | \$M                 | \$M         | \$M          | \$M          |
|--------------|--------------|--------------|-----------------|----------------------|----------------------|---------------------|-------------|--------------|--------------|
|              | EDP          | Office Equip | Control & Instr | Medical & Industrial | Radio Comms & Radar* | Telecomm-unications | Consumer    | Compo-nents  | TOTAL        |
| Bulgaria     | 494          | 16           | 134             | 103                  | 368                  | 132                 | 287         | 198          | 1732         |
| Croatia      | 505          | 22           | 122             | 95                   | 328                  | 162                 | 237         | 152          | 1623         |
| Czech        | 2121         | 94           | 791             | 380                  | 1004                 | 285                 | 841         | 4950         | 10466        |
| Estonia      | 224          | 4            | 85              | 66                   | 112                  | 51                  | 84          | 587          | 1213         |
| Hungary      | 2532         | 44           | 439             | 382                  | 610                  | 336                 | 643         | 7379         | 12365        |
| Lithuania    | 310          | 18           | 82              | 62                   | 222                  | 84                  | 169         | 155          | 1102         |
| Poland       | 3383         | 153          | 1101            | 422                  | 2211                 | 1469                | 1687        | 2892         | 13318        |
| Romania      | 1150         | 50           | 457             | 258                  | 1027                 | 694                 | 412         | 771          | 4819         |
| Russia       | 4817         | 213          | 1521            | 2498                 | 5702                 | 1558                | 3212        | 1595         | 21116        |
| Slovakia     | 870          | 22           | 410             | 240                  | 613                  | 255                 | 328         | 2346         | 5084         |
| Slovenia     | 436          | 18           | 185             | 68                   | 301                  | 145                 | 189         | 264          | 1606         |
| Ukraine      | 612          | 29           | 367             | 375                  | 586                  | 407                 | 258         | 378          | 3012         |
| <b>TOTAL</b> | <b>17453</b> | <b>684</b>   | <b>5694</b>     | <b>4949</b>          | <b>13084</b>         | <b>5578</b>         | <b>8348</b> | <b>21667</b> | <b>77456</b> |

Notes 2008 are current figures at current exchange rates. 2009 are forecasts at 2008 constant values & exchange rates (i.e. inflation is not included)

## 4.7 Poland

### 4.7.1 Economic Outlook

- Economic activity continued to be relatively robust in 2008. Driven by domestic demand, real GDP growth eased to 4.8% from 6.6% in 2007. Strong consumption activity in the second half of the year was backed by rising employment and wages. However investment activity decelerated as business confidence and industrial output stalled.
- GDP is expected to contract by 0.8% in 2009. Compared with other countries in the region this a relatively mild recession thanks, among other factors, to the lower share of trade in GDP. Exports are however expected to fall by 11% in 2009 due to low external demand in the EU – the main trading partner. While the fall is considerable, it is forecast to remain relatively constrained because of the currency's depreciation. The contribution of domestic demand will be negative with investment set to fall by 6.25%. Investment in equipment will be badly hit because of the restricted access to credit, worsening company results and decelerating FDI. Infrastructure investment will benefit from the strong inflow of EU funds and increased public spending.
- In 2010, GDP growth is expected to increase by 1.5%, as external demand will positively affect GDP growth, while domestic demand is forecast to be broadly neutral. Equipment investment is set to rebound slightly supported by improved results of enterprises and FDI inflows.
- Slower economic growth and lower wage growth will allow annual average inflation to fall from 4.2% in 2008 to 2.9% in 2009 and 2.3% in 2010.
- During 2008 the labour market continued to improve with the unemployment rate falling to 7% from 9.5% in 2007. However with the slowdown in economic activity the number of unemployed is expected to reach some 1.7 million in 2009, close to 10% of the labour force, and to increase to around 12% in 2010.



### Poland's Leading Economic Indicators

| % Increase    | Actual |      |      | Forecast |      |      |      |
|---------------|--------|------|------|----------|------|------|------|
|               | 2004   | 2005 | 2006 | 2007     | 2008 | 2009 | 2010 |
| Growth of GDP | 5.3    | 3.6  | 6.2  | 6.6      | 4.8  | -0.8 | 1.5  |

*Source: EU Economic Forecasts, Spring 2009, EIU*

#### 4.7.2 Poland in a European Context

##### Market & Production Rankings

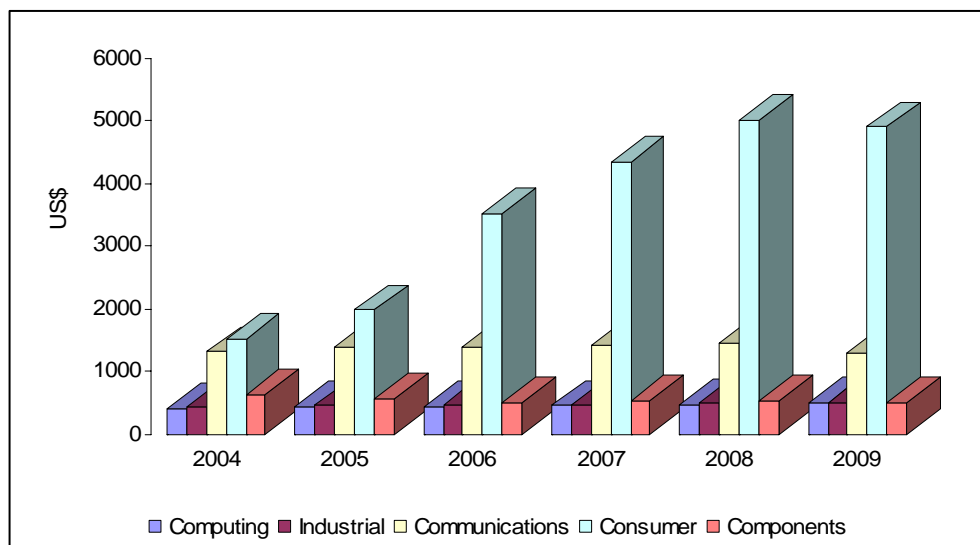
The following table ranks Poland's position within East & West Europe in terms of electronics production and markets in 2007.

| Sector                    | Production       | Market          |
|---------------------------|------------------|-----------------|
| EDP                       | 15 (0.8%)        | 11 (2.5%)       |
| Office Equipment          | 11 (1.4%)        | 10 (2.6%)       |
| Control & Instrumentation | 18 (0.7%)        | 11 (2.5%)       |
| Medical & Industrial      | 19 (0.6%)        | 12 (1.8%)       |
| Radio Communications*     | 13 (0.8%)        | 7 (3.4%)        |
| Telecommunications        | 8 (4.1%)         | 7 (5.3%)        |
| Consumer                  | 1 (15.2%)        | 8 (3.0%)        |
| Components                | 18 (0.9%)        | 11 (2.8%)       |
| <b>TOTAL</b>              | <b>12 (2.4%)</b> | <b>8 (2.9%)</b> |

\* Includes mobile phones

#### 4.7.3 Electronics Industry Overview

Electronics output in Poland reached an estimated US\$8,016 million in 2008, 10% higher than a year earlier and followed growth of 14.1% and 30.8% in 2007 and 2006, respectively.



Poland Electronics Production 2004-2009

The industry, however, is heavily dependent on the production of TVs (estimated 61% of output in 2008). Poland is now the manufacturing hub for TVs in Europe, the country benefiting from a series of recent investments in new capacity. In 2008, an estimated 10.1 million TVs were produced in the country up from 9.3 million in 2007 and 8.9 million in 2006.

The TV industry is dominated by overseas manufacturers. Recent developments have included:

As part of the restructuring of the loss-making TV business that TCL acquired from Thomson in 2004, TCL announced in November 2006 that it was shutting the inherited plant at Zyradow.

In June 2007, Funai Electric started production of LCD TVs at its newly constructed plant at Nowa-Sól. The plant is now manufacturing products under the agreement with JVC. In early 2009, the company announced plans to expand its production facilities.

**Summary of Polish Electronics Production**

| US\$ Millions  | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|----------------|------|------|------|------|------|------|
| Computing      | 410  | 445  | 445  | 460  | 482  | 517  |
| Industrial     | 456  | 460  | 485  | 490  | 522  | 517  |
| Communications | 1320 | 1408 | 1410 | 1425 | 1467 | 1291 |
| Consumer       | 1537 | 1987 | 3530 | 4360 | 5002 | 4901 |
| Components     | 627  | 580  | 513  | 549  | 543  | 507  |
| Total          | 4350 | 4880 | 6383 | 7284 | 8016 | 7734 |

*Notes: Computing includes office equipment; Industrial combines control and instrumentation and medical and industrial; and communications combines fixed and wireless communications (inc. defence). Due to computer rounding the summary figures above may differ slightly from the figures presented in the main tables.*

In July 2007, Toshiba commenced production of LCD TVs at its newly constructed plant in Kobierzyce, in south-west Poland, with plans to invest about six billion yen over a five year period.

Poland-based technology company Pronox Technology SA opened a plant in Dabrowa Górnicza in October 2007 to manufacture 500,000 LCD TVs per year as well as DVD players. However in June 2009, the company filed for bankruptcy.

TPV Technology commenced LCD TV trial production at its new Gorzów plant, near Krakow, in the second quarter of 2008, and mass production in the third quarter. In 2008, the Group shipped 1.5m display products (PC monitors and LCD TVs) from the site and the target for 2009 is a shipment of 4.1m units.

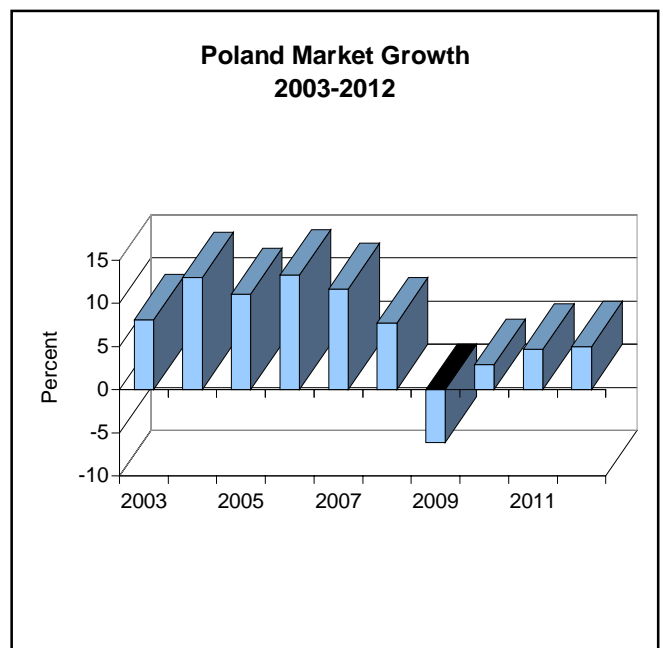
Humax Digital has now ceased the manufacture of LCD TVs, and the Polish plant is used only for the manufacture of set-top boxes.

As part of a debt-rescheduling programme, it is believed that Daewoo Electronics has closed its TV production facility in Pruszkow. It has also been reported that Daewoo are in the process of selling off its loss-making TV business, to concentrate on its home appliances business.

Sharp Manufacturing Poland began production of LCD modules in January 2007 at a plant in Lysomice, with an initial capacity of 100,000 modules/month. The plant will supply modules to Sharp's TV plant in Spain and Loewe in Germany. It is possible that the Polish plant may start manufacturing LCD TVs itself.

The decision by Dell to transfer the production of computers from Ireland to a facility in Poland should boost the long term prospects for computer production in the country. The phased transition is expected to take place during 2009. In 2008 computing accounted for only 5.6% of overall output.

Production of communication and telecommunication products accounted for an estimated 18% of total output in 2008. Poland's communications infrastructure still lags much of Europe and is expected to



provide significant opportunities in the next few years, although much of the market will be supplied by imports.

Poland has a well established EMS industry with a number of indigenous companies, most notably Fideltronik, supporting the Tier 1 global providers Flextronics and Jabil and a number of other European and US companies including HANZA (Sweden), Lacroix (France), Kimball Electronics (USA), NOTE (Sweden) and PartnerTech (Sweden).

#### **4.7.4 List of Sources**

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EU External Trade - Eurostat  
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EU Economic Forecasts – Spring 2007  
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Handel Zagraniczny  
OECD Economic Outlook  
Polish Embassy  
Telecom Statistics - International Telecommunications Union  
Trade Statistics - United Nations

#### 4.7.5 POLAND PRODUCTION

| <b>ELECTRONIC DATA PROCESSING</b> |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|-----------------------------------|-----|-------------|-------------|-------------|-------------|
| Computers Systems & Peripherals   | ZtM | 684         | 637         | 597         | 661         |
|                                   | \$M | <b>220</b>  | <b>230</b>  | <b>248</b>  | <b>274</b>  |
| Accessories & Parts               | ZtM | 606         | 554         | 491         | 514         |
|                                   | \$M | <b>195</b>  | <b>200</b>  | <b>204</b>  | <b>213</b>  |
| <b>EDP Total</b>                  | ZtM | 1291        | 1191        | 1088        | 1175        |
|                                   | \$M | <b>415</b>  | <b>430</b>  | <b>452</b>  | <b>488</b>  |

| <b>OFFICE EQUIPMENT</b>       |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|-------------------------------|-----|-------------|-------------|-------------|-------------|
| <b>Office Equipment Total</b> | ZtM | 93          | 83          | 74          | 72          |
|                               | \$M | <b>30</b>   | <b>30</b>   | <b>31</b>   | <b>30</b>   |

| <b>CONTROL &amp; INSTRUMENTATION</b>       |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|--|-----|-------------|-------------|-------------|-------------|
| <b>Control &amp; Instrumentation Total</b> | ZtM | 1104        | 997         | 928         | 910         |
|  | \$M | <b>355</b>  | <b>360</b>  | <b>385</b>  | <b>377</b>  |

| <b>MEDICAL &amp; INDUSTRIAL</b>            |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|--|-----|-------------|-------------|-------------|-------------|
| <b>X-Ray &amp; Medical Equipment Total</b> | ZtM | 156         | 139         | 127         | 129         |
|  | \$M | <b>50</b>   | <b>50</b>   | <b>53</b>   | <b>54</b>   |
| <b>Industrial Equipment Total</b>          | ZtM | 249         | 222         | 202         | 206         |
|  | \$M | <b>80</b>   | <b>80</b>   | <b>84</b>   | <b>86</b>   |
| <b>Medical &amp; Industrial Total</b>      | ZtM | 404         | 360         | 329         | 336         |
|  | \$M | <b>130</b>  | <b>130</b>  | <b>137</b>  | <b>139</b>  |

| <b>COMMUNICATIONS &amp; RADAR</b>                  |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|--|-----|-------------|-------------|-------------|-------------|
| Radar & navigational Aids                          | ZtM | 187         | 166         | 143         | 119         |
|  | \$M | <b>60</b>   | <b>60</b>   | <b>59</b>   | <b>49</b>   |
| Radio Communications & Public Broadcast            | ZtM | 1166        | 1066        | 983         | 872         |
|  | \$M | <b>375</b>  | <b>385</b>  | <b>408</b>  | <b>362</b>  |
| <b>Total Communications &amp; Radar Production</b> | ZtM | 1353        | 1233        | 1126        | 991         |
|  | \$M | <b>435</b>  | <b>445</b>  | <b>467</b>  | <b>411</b>  |

| <b>TELECOMMUNICATIONS</b>       |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|---------------------------------|-----|-------------|-------------|-------------|-------------|
| <b>Telecommunications Total</b> | ZtM | 3032        | 2715        | 2409        | 2120        |
|                                 | \$M | <b>975</b>  | <b>980</b>  | <b>1000</b> | <b>880</b>  |

**POLAND PRODUCTION (cont)**

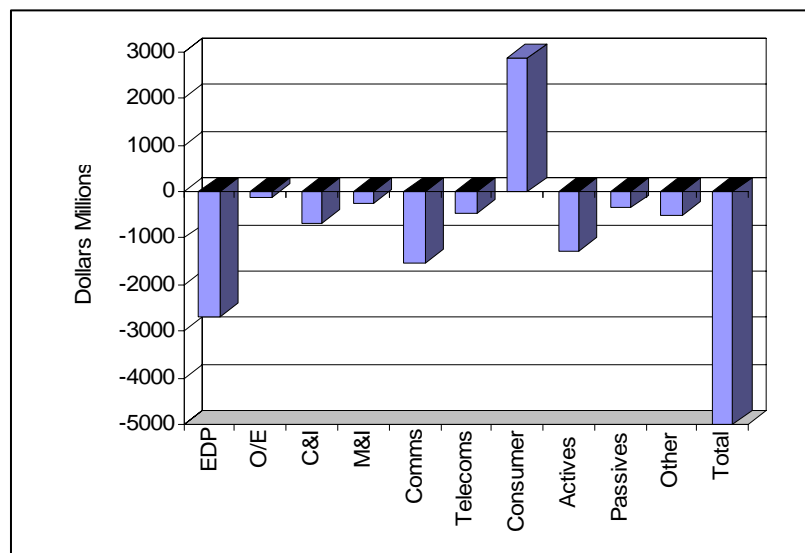
| <b>CONSUMER</b>                            |              | <b>2006</b> | <b>2007</b> | <b>2008</b>  | <b>2009</b>  |
|--|--------------|-------------|-------------|--------------|--------------|
| <b>Video Equipment</b>                     |              |             |             |              |              |
| Colour Television                          | ZtM          | 10574       | 11773       | 11781        | 11548        |
|  | <b>\$M</b>   | <b>3400</b> | <b>4250</b> | <b>4889</b>  | <b>4792</b>  |
|  | <i>No.th</i> | <i>8862</i> | <i>9250</i> | <i>10100</i> | <i>10197</i> |
| Video Recorders & DVD Players              | ZtM          | 124         | 55          | 53           | 46           |
|  | <b>\$M</b>   | <b>40</b>   | <b>20</b>   | <b>22</b>    | <b>19</b>    |
|  | <i>No.th</i> | <i>500</i>  | <i>250</i>  | <i>279</i>   | <i>250</i>   |
| <b>Total Video Equipment</b>               | ZtM          | 10698       | 11828       | 11834        | 11598        |
|  | <b>\$M</b>   | <b>3440</b> | <b>4270</b> | <b>4911</b>  | <b>4812</b>  |
| <b>Audio Equipment</b>                     |              |             |             |              |              |
| <b>Audio Equipment Total</b>               | ZtM          | 78          | 69          | 60           | 58           |
|  | <b>\$M</b>   | <b>25</b>   | <b>25</b>   | <b>25</b>    | <b>24</b>    |
| <b>Personal Consumer Equipment</b>         |              |             |             |              |              |
| <b>Personal Consumer Equipment Total</b>   | ZtM          | 202         | 180         | 160          | 157          |
|  | <b>\$M</b>   | <b>65</b>   | <b>65</b>   | <b>66</b>    | <b>65</b>    |
| <b>Consumer Total</b>                      | ZtM          | 10978       | 12077       | 12054        | 11812        |
|  | <b>\$M</b>   | <b>3530</b> | <b>4360</b> | <b>5002</b>  | <b>4901</b>  |
| <b>COMPONENTS</b>                          |              | <b>2006</b> | <b>2007</b> | <b>2008</b>  | <b>2009</b>  |
| <b>Active Components</b>                   |              |             |             |              |              |
| Valves & Tubes                             | ZtM          | 311         | 194         | 94           | 46           |
|  | <b>\$M</b>   | <b>100</b>  | <b>70</b>   | <b>39</b>    | <b>19</b>    |
| Discrete Semiconductors                    | ZtM          | 124         | 152         | 157          | 169          |
|  | <b>\$M</b>   | <b>40</b>   | <b>55</b>   | <b>65</b>    | <b>70</b>    |
| Integrated Circuits                        | ZtM          | 280         | 263         | 241          | 229          |
|  | <b>\$M</b>   | <b>90</b>   | <b>95</b>   | <b>100</b>   | <b>95</b>    |
| <b>Active Components Total</b>             | ZtM          | 715         | 609         | 492          | 443          |
|  | <b>\$M</b>   | <b>230</b>  | <b>220</b>  | <b>204</b>   | <b>184</b>   |
| <b>Passive Components</b>                  |              |             |             |              |              |
| Capacitors                                 | ZtM          | 93          | 83          | 75           | 71           |
|  | <b>\$M</b>   | <b>30</b>   | <b>30</b>   | <b>31</b>    | <b>29</b>    |
| Resistors                                  | ZtM          | 25          | 25          | 22           | 19           |
|  | <b>\$M</b>   | <b>8</b>    | <b>9</b>    | <b>9</b>     | <b>8</b>     |
| Connectors, Switches<br>Relays & Inductors | ZtM          | 124         | 208         | 184          | 170          |
|  | <b>\$M</b>   | <b>40</b>   | <b>75</b>   | <b>77</b>    | <b>71</b>    |
| Printed Circuit Boards                     | ZtM          | 233         | 222         | 200          | 188          |
|  | <b>\$M</b>   | <b>75</b>   | <b>80</b>   | <b>83</b>    | <b>78</b>    |
| <b>Passive Components Total</b>            | ZtM          | 476         | 537         | 482          | 448          |
|  | <b>\$M</b>   | <b>153</b>  | <b>194</b>  | <b>200</b>   | <b>186</b>   |

**POLAND PRODUCTION (cont)**

| <b>COMPONENTS (cont)</b>      |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|-------------------------------|-----|-------------|-------------|-------------|-------------|
| <b>Other Components</b>       |     |             |             |             |             |
| <b>Other Components Total</b> | ZtM | 404         | 374         | 338         | 332         |
|                               | \$M | <b>130</b>  | <b>135</b>  | <b>140</b>  | <b>138</b>  |
| <b>Components Total</b>       | ZtM | 1595        | 1521        | 1312        | 1223        |
|                               | \$M | <b>513</b>  | <b>549</b>  | <b>544</b>  | <b>507</b>  |

|                                  |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> |
|----------------------------------|-----|-------------|-------------|-------------|-------------|
| <b>TOTAL PRODUCTION - POLAND</b> |     |             |             |             |             |
|                                  | ZtM | 19851       | 20177       | 19320       | 18638       |
|                                  | \$M | <b>6383</b> | <b>7284</b> | <b>8017</b> | <b>7734</b> |

Notes: 2006 and 2007 are current figures at current exchange rates. 2008 and 2009 are forecasts at 2008 constant values and exchange rates (i.e. inflation is not included). Base year 2007.  
 Estimates & forecast are made in US\$ with local values shown for guidance only



**Poland Trade Balance 2007**

#### 4.7.6 POLAND MARKETS

| <b>ELECTRONIC DATA PROCESSING</b> |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|-----------------------------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Computers Systems & Peripherals   | ZtM | 6403        | 6277        | 5914        | 5337        | 5459        | 5692        | 5936        | %            |
|                                   | \$M | <b>2059</b> | <b>2266</b> | <b>2454</b> | <b>2215</b> | <b>2265</b> | <b>2362</b> | <b>2463</b> | 0            |
| Accessories & Parts               | ZtM | 2416        | 2399        | 2238        | 2000        | 2025        | 2091        | 2158        |              |
|                                   | \$M | <b>777</b>  | <b>866</b>  | <b>929</b>  | <b>830</b>  | <b>840</b>  | <b>867</b>  | <b>896</b>  | -1           |
| <b>Total EDP Market</b>           | ZtM | 8820        | 8676        | 8152        | 7337        | 7484        | 7783        | 8094        |              |
|                                   | \$M | <b>2836</b> | <b>3132</b> | <b>3383</b> | <b>3044</b> | <b>3105</b> | <b>3229</b> | <b>3359</b> | 0            |

| <b>OFFICE EQUIPMENT</b>              |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|--------------------------------------|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| <b>Total Office Equipment Market</b> | ZtM | 420         | 413         | 370         | 362         | 355         | 359         | 362         | %            |
|                                      | \$M | <b>135</b>  | <b>149</b>  | <b>153</b>  | <b>150</b>  | <b>147</b>  | <b>149</b>  | <b>150</b>  | -1           |

| <b>CONTROL &amp; INSTRUMENTATION</b>       |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|--|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| <b>Total Control &amp; Instrumentation</b> | ZtM | 2637        | 2850        | 2653        | 2627        | 2679        | 2760        | 2898        | %            |
|  | \$M | <b>848</b>  | <b>1029</b> | <b>1101</b> | <b>1090</b> | <b>1112</b> | <b>1145</b> | <b>1202</b> | 2            |

| <b>MEDICAL &amp; INDUSTRIAL</b>              |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|--|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| <b>Total X-Ray &amp; Medical Equip</b>       | ZtM | 781         | 806         | 757         | 757         | 780         | 819         | 876         | %            |
|  | \$M | <b>251</b>  | <b>291</b>  | <b>314</b>  | <b>314</b>  | <b>324</b>  | <b>340</b>  | <b>364</b>  | 4            |
| <b>Total Industrial Equipment</b>            | ZtM | 302         | 285         | 261         | 261         | 263         | 274         | 293         |              |
|  | \$M | <b>97</b>   | <b>103</b>  | <b>108</b>  | <b>108</b>  | <b>109</b>  | <b>114</b>  | <b>122</b>  | 3            |
| <b>Total Medical &amp; Industrial Market</b> | ZtM | 1082        | 1091        | 1018        | 1018        | 1043        | 1093        | 1169        |              |
|  | \$M | <b>348</b>  | <b>394</b>  | <b>422</b>  | <b>422</b>  | <b>433</b>  | <b>453</b>  | <b>485</b>  | 4            |

| <b>COMMUNICATIONS &amp; RADAR</b>       |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|---|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Radar & navigational Aids               | ZtM | 292         | 413         | 392         | 351         | 349         | 353         | 361         | %            |
|   | \$M | <b>94</b>   | <b>149</b>  | <b>163</b>  | <b>146</b>  | <b>145</b>  | <b>147</b>  | <b>150</b>  | -2           |
| Radio Communications & Public Broadcast | ZtM | 4889        | 5055        | 4936        | 4551        | 4651        | 4847        | 5099        |              |
|   | \$M | <b>1572</b> | <b>1825</b> | <b>2048</b> | <b>1888</b> | <b>1930</b> | <b>2011</b> | <b>2116</b> | 1            |
| <b>Total Communications &amp; Radar</b> | ZtM | 5181        | 5468        | 5328        | 4902        | 5000        | 5200        | 5460        |              |
|   | \$M | <b>1666</b> | <b>1974</b> | <b>2211</b> | <b>2034</b> | <b>2075</b> | <b>2158</b> | <b>2266</b> | 1            |

| <b>TELECOMMUNICATIONS</b>              |     | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|--|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| <b>Total Telecommunications Market</b> | ZtM | 4230        | 3950        | 3540        | 3469        | 3469        | 3538        | 3644        | %            |
|  | \$M | <b>1360</b> | <b>1426</b> | <b>1469</b> | <b>1439</b> | <b>1439</b> | <b>1468</b> | <b>1512</b> | 1            |

**POLAND – MARKETS (cont)**

| <b>CONSUMER</b>                            |       | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|--|-------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
|  |       |             |             |             |             |             |             |             | %            |
| <b>Video Equipment</b>                     |       |             |             |             |             |             |             |             |              |
| Colour Television                          | ZtM   | 1723        | 1909        | 1749        | 1669        | 1674        | 1687        | 1698        |              |
|  | \$M   | <b>554</b>  | <b>689</b>  | <b>726</b>  | <b>693</b>  | <b>695</b>  | <b>700</b>  | <b>705</b>  | -1           |
|  | No.th | 2562        | 2750        | 2896        | 2764        | 2772        | 2793        | 2813        |              |
| Video Recorders & DVD Players              | ZtM   | 544         | 496         | 459         | 442         | 448         | 456         | 464         |              |
|  | \$M   | <b>175</b>  | <b>179</b>  | <b>190</b>  | <b>184</b>  | <b>186</b>  | <b>189</b>  | <b>192</b>  | 0            |
|  | No.th | 1230        | 1270        | 1364        | 1328        | 1359        | 1397        | 1435        |              |
| Digital Cameras                            | ZtM   | 893         | 981         | 943         | 945         | 996         | 1053        | 1114        |              |
|  | \$M   | <b>287</b>  | <b>354</b>  | <b>391</b>  | <b>392</b>  | <b>413</b>  | <b>437</b>  | <b>462</b>  | 4            |
|  | No.th | 1550        | 1800        | 2300        | 2328        | 2476        | 2645        | 2825        |              |
| <b>Total Video Equipment</b>               | ZtM   | 3160        | 3385        | 3151        | 3057        | 3118        | 3196        | 3276        |              |
|  | \$M   | <b>1016</b> | <b>1222</b> | <b>1308</b> | <b>1268</b> | <b>1294</b> | <b>1326</b> | <b>1359</b> | 1            |
| <b>Audio Equipment</b>                     |       |             |             |             |             |             |             |             |              |
| <b>Total Audio Equipment</b>               | ZtM   | 697         | 673         | 615         | 603         | 615         | 627         | 639         |              |
|  | \$M   | <b>224</b>  | <b>243</b>  | <b>255</b>  | <b>250</b>  | <b>255</b>  | <b>260</b>  | <b>265</b>  | 1            |
| <b>Personal Consumer Equipment</b>         |       |             |             |             |             |             |             |             |              |
| <b>Total Personal Consumer Equipment</b>   | ZtM   | 351         | 335         | 300         | 300         | 303         | 306         | 309         |              |
|  | \$M   | <b>113</b>  | <b>121</b>  | <b>125</b>  | <b>125</b>  | <b>126</b>  | <b>127</b>  | <b>128</b>  | 1            |
| <b>Total Consumer Market</b>               | ZtM   | 4208        | 4393        | 4066        | 3960        | 4036        | 4129        | 4225        |              |
|  | \$M   | <b>1353</b> | <b>1586</b> | <b>1687</b> | <b>1643</b> | <b>1675</b> | <b>1713</b> | <b>1753</b> | 1            |
| <b>COMPONENTS</b>                          |       | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>CAAGR</b> |
|  |       |             |             |             |             |             |             |             | %            |
| <b>Active Components</b>                   |       |             |             |             |             |             |             |             |              |
| Valves & Tubes                             | ZtM   | 467         | 72          | 39          | 22          | 12          | 7           | 2           |              |
|  | \$M   | <b>150</b>  | <b>26</b>   | <b>16</b>   | <b>9</b>    | <b>5</b>    | <b>3</b>    | <b>1</b>    | -50          |
| Discrete Semiconductors                    | ZtM   | 597         | 576         | 525         | 511         | 542         | 586         | 631         |              |
|  | \$M   | <b>192</b>  | <b>208</b>  | <b>218</b>  | <b>212</b>  | <b>225</b>  | <b>243</b>  | <b>262</b>  | 5            |
| Integrated Circuits                        | ZtM   | 3517        | 3451        | 3273        | 2914        | 3176        | 3557        | 3911        |              |
|  | \$M   | <b>1131</b> | <b>1246</b> | <b>1358</b> | <b>1209</b> | <b>1318</b> | <b>1476</b> | <b>1623</b> | 5            |
| <b>Total Active Components</b>             | ZtM   | 4581        | 4100        | 3837        | 3446        | 3731        | 4150        | 4545        |              |
|  | \$M   | <b>1473</b> | <b>1480</b> | <b>1592</b> | <b>1430</b> | <b>1548</b> | <b>1722</b> | <b>1886</b> | 4            |
| <b>Passive Components</b>                  |       |             |             |             |             |             |             |             |              |
| Capacitors                                 | ZtM   | 348         | 338         | 302         | 286         | 293         | 302         | 309         |              |
|  | \$M   | <b>112</b>  | <b>122</b>  | <b>125</b>  | <b>118</b>  | <b>122</b>  | <b>125</b>  | <b>128</b>  | 1            |
| Resistors                                  | ZtM   | 118         | 116         | 104         | 98          | 101         | 104         | 107         |              |
|  | \$M   | <b>38</b>   | <b>42</b>   | <b>43</b>   | <b>41</b>   | <b>42</b>   | <b>43</b>   | <b>44</b>   | 1            |
| Connectors, Switches<br>Relays & Inductors | ZtM   | 373         | 352         | 320         | 309         | 323         | 340         | 355         |              |
|  | \$M   | <b>120</b>  | <b>127</b>  | <b>133</b>  | <b>128</b>  | <b>134</b>  | <b>141</b>  | <b>147</b>  | 3            |
| Printed Circuit Boards                     | ZtM   | 694         | 723         | 658         | 635         | 664         | 698         | 730         |              |
|  | \$M   | <b>223</b>  | <b>261</b>  | <b>273</b>  | <b>264</b>  | <b>276</b>  | <b>290</b>  | <b>303</b>  | 3            |
| <b>Total Passive Components</b>            | ZtM   | 1533        | 1529        | 1384        | 1328        | 1381        | 1443        | 1501        |              |
|  | \$M   | <b>493</b>  | <b>552</b>  | <b>574</b>  | <b>551</b>  | <b>573</b>  | <b>599</b>  | <b>623</b>  | 2            |

**POLAND – MARKETS (cont)**

| <b>COMPONENTS</b>              |            | <b>2006</b>  | <b>2007</b>  | <b>2008</b>  | <b>2009</b>  | <b>2010</b>  | <b>2011</b>  | <b>2012</b>  | <b>CAAGR</b> |
|--------------------------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Total Other Components</b>  | ZtM        | 1751         | 1795         | 1749         | 1679         | 1813         | 1995         | 2174         | %            |
|                                | <b>\$M</b> | <b>563</b>   | <b>648</b>   | <b>726</b>   | <b>697</b>   | <b>752</b>   | <b>828</b>   | <b>902</b>   | 6            |
| <b>Total Components Market</b> | ZtM        | 7865         | 7424         | 6969         | 6454         | 6925         | 7588         | 8221         |              |
|                                | <b>\$M</b> | <b>2529</b>  | <b>2680</b>  | <b>2892</b>  | <b>2678</b>  | <b>2874</b>  | <b>3149</b>  | <b>3411</b>  | 4            |
|                                |            | <b>2006</b>  | <b>2007</b>  | <b>2008</b>  | <b>2009</b>  | <b>2010</b>  | <b>2011</b>  | <b>2012</b>  | <b>CAAGR</b> |
| <b>TOTAL MARKET – POLAND</b>   | ZtM        | 34443        | 34265        | 32097        | 30128        | 30992        | 32450        | 34074        | %            |
|                                | <b>\$M</b> | <b>11075</b> | <b>12370</b> | <b>13318</b> | <b>12501</b> | <b>12860</b> | <b>13465</b> | <b>14138</b> | 2            |

Notes: 2006 to 2007 are current figures at current exchange rates

2008 to 2012 are forecasts at 2008 constant values & exchange rates (ie. Inflation is not included)

CAAGR column indicates true annual average growth between 2008 and 2012

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