

MCU Memory Trends: How Much and What Kind

December 2010

ML105-10

© Copyright Semico Research Corp., 2010. All rights reserved.

Reproduction in whole or part is prohibited without the express written permission of Semico.

The contents of this report represent the interpretation and analysis of statistics and information that is generally available to the public or released by responsible agencies or individuals, but is not guaranteed as to its accuracy or completeness.

Table of Contents

| | |
|--|------------|
| Table of Contents..... | i |
| List of Tables..... | ii |
| List of Figures | iii |
| Executive Summary..... | 1 |
| Methodology..... | 2 |
| Overview..... | 3 |
| Microcontrollers Sub-Categories | 5 |
| 8-bit MCU | 6 |
| 16-bit MCU | 7 |
| 32-bit MCU | 9 |
| Appendix | A 1 |

List of Tables

| | |
|--|--------------------|
| Table 1: MCU Memory Density Ranges | 6 |
| <u>Table A 1: Total MCU Market</u> | <u>A-2</u> |
| <u>Table A 2: 8-Bit MCU Market by Memory Density Ranges</u> | <u>A-5</u> |
| <u>Table A 3: 8-Bit MCU Market by Memory Type</u> | <u>A-7</u> |
| <u>Table A 4: 8-Bit MCU IC Cards by Memory Density Range</u> | <u>A-9</u> |
| <u>Table A 5: 8-Bit MCU Flash-based by Memory Density Range</u> | <u>A-11</u> |
| <u>Table A 6: 16-Bit MCU Market by Memory Density Ranges</u> | <u>A-19</u> |
| <u>Table A 7: 16-Bit MCU Market by Memory Type</u> | <u>A-21</u> |
| <u>Table A 8: 16-Bit MCU IC Cards by Memory Density Ranges</u> | <u>A-23</u> |
| <u>Table A 9: 16-Bit MCU Flash-based by Memory Density Ranges</u> | <u>A-25</u> |
| <u>Table A 10: 32-Bit MCU Market by Memory Density Ranges</u> | <u>A-33</u> |
| <u>Table A 11: 32-Bit MCU Market by Memory Type</u> | <u>A-35</u> |
| <u>Table A 12: 32-Bit MCU IC Cards by Memory Density Ranges</u> | <u>A-37</u> |
| <u>Table A 13: 32-Bit MCU Flash-based by Memory Density Ranges</u> | <u>A-39</u> |
| <u>Table A 14: Total 8-Bit, 16-Bit and 32-Bit MCU Market by Memory Type</u> | <u>A-47</u> |

List of Figures

| | |
|--|-------------|
| Figure 1: MCU Sales by End Use Markets, 2010 | 4 |
| Figure 2: MCU Shipments by End Use Markets, 2010 | 4 |
| | |
| Figure A 1: Total MCU Sales | A-3 |
| Figure A 2: Total MCU Shipments | A-4 |
| Figure A 3: 8-bit MCU Sales by Memory Density..... | A-13 |
| Figure A 4: 8-bit MCU Shipments by Memory Density | A-14 |
| Figure A 5: 8-bit MCU Sales by Memory Technology..... | A-15 |
| Figure A 6: 8-bit MCU Shipments by Memory Technology..... | A-16 |
| Figure A 7: 8-bit IC Card Shipments by Memory Density..... | A-17 |
| Figure A 8: 8-bit Flash MCU Shipments by Memory Density | A-18 |
| Figure A 9: 16-bit MCU Sales by Memory Density..... | A-27 |
| Figure A 10: 16-bit MCU Shipments by Memory Density | A-28 |
| Figure A 11: 16-bit MCU Sales by Memory Technology..... | A-29 |
| Figure A 12: 16-bit MCU Shipments by Memory Technology..... | A-30 |
| Figure A 13: 16-bit IC Card Shipments by Memory Density..... | A-31 |
| Figure A 14: 16-bit Flash MCU Shipments by Memory Density | A-32 |
| Figure A 15: 32-bit+ MCU Sales by Memory Density | A-41 |
| Figure A 16: 32-bit+ MCU Shipments by Memory Density | A-42 |
| Figure A 17: 32-bit+ MCU Sales by Memory Technology..... | A-43 |
| Figure A 18: 32-bit+ MCU Shipments by Memory Technology | A-44 |
| Figure A 19: 32-bit+ IC Card Shipments by Memory Density | A-45 |

| | |
|--|-------------|
| Figure A 20: 32-bit+ Flash MCU Shipments by Memory Density | A-46 |
| Figure A 21: Total MCU Sales by Memory Type (excl. 4-bit)..... | A-49 |
| Figure A 22: Total MCU Shipments by Memory Type (excl. 4-bit)..... | A-50 |
| Figure A 23: MCU Sales (excl. IC cards) by Memory Type (excl. 4-bit) | A-51 |
| Figure A 24: MCU Shipments (excl. IC cards) by Memory Type (excl. 4-bit)..... | A-52 |