

# ZILCOS Z80<sup>®</sup> EMBEDDED CONTROLLERS      SUPERINTEGRATION      PRODUCTS GUIDE

|                          |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
|--------------------------|--|-------|--------------------|---------|--------|-----|------|--------|--|-------|--|-------|--|-----|--|---|-----|--------------------|--------|--|------|--|--|--------|------------|-------------------|--|-------|--|------|--|---|--------------------------|------------|-----------------|--|-----------------------|--|
| <b>BLOCK DIAGRAM</b>     | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">2 DMA</td> <td style="width: 50%;">SCC/2<br/>(85C30/2)</td> </tr> <tr> <td>Z80 CPU</td> <td>16 I/O</td> </tr> <tr> <td>MMU</td> <td>Z180</td> </tr> <tr> <td>2 UART</td> <td></td> </tr> <tr> <td>2 C/T</td> <td></td> </tr> <tr> <td>C/Ser</td> <td></td> </tr> <tr> <td>OSC</td> <td></td> </tr> </table>   | 2 DMA | SCC/2<br>(85C30/2) | Z80 CPU | 16 I/O | MMU | Z180 | 2 UART |  | 2 C/T |  | C/Ser |  | OSC |  | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">CTC</td> <td style="width: 50%;">SCC/2<br/>(85C30/2)</td> </tr> <tr> <td>16 I/O</td> <td></td> </tr> <tr> <td>Z180</td> <td></td> </tr> </table> | CTC | SCC/2<br>(85C30/2) | 16 I/O |  | Z180 |  | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">24 I/O</td> <td style="width: 50%;">16-BIT CPU</td> </tr> <tr> <td>85230 ESCC (2 CH)</td> <td></td> </tr> <tr> <td>MIMIC</td> <td></td> </tr> <tr> <td>S180</td> <td></td> </tr> </table> | 24 I/O | 16-BIT CPU | 85230 ESCC (2 CH) |  | MIMIC |  | S180 |  | <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Clock w/ Standby Control</td> <td style="width: 50%;">16-BIT CPU</td> </tr> <tr> <td>Refresh Control</td> <td></td> </tr> <tr> <td>Chip Selects and Wait</td> <td></td> </tr> </table> | Clock w/ Standby Control | 16-BIT CPU | Refresh Control |  | Chip Selects and Wait |  |
| 2 DMA                    | SCC/2<br>(85C30/2)   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| Z80 CPU                  | 16 I/O   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| MMU                      | Z180   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| 2 UART                   |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| 2 C/T                    |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| C/Ser                    |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| OSC                      |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| CTC                      | SCC/2<br>(85C30/2)   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| 16 I/O                   |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| Z180                     |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| 24 I/O                   | 16-BIT CPU   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| 85230 ESCC (2 CH)        |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| MIMIC                    |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| S180                     |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| Clock w/ Standby Control | 16-BIT CPU   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| Refresh Control          |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| Chip Selects and Wait    |  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PART NUMBER</b>       | <b>Z80180/Z8S180/Z8L180</b>  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>DESCRIPTION</b>       | High-Performance Z80 <sup>®</sup> CPU with Peripherals<br>Z8S180 = Static Version<br>Z8L180 = Low-Voltage Version  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PROCESS/SPEED</b>     | Z80180 = CMOS: 6, 8, 10, MHz<br>Z8S180 = CMOS: 16 MHz<br>Z8L180 = CMOS: 20, 33 MHz   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>FEATURES</b>          | <ul style="list-style-type: none"> <li>■ Enhanced Z80<sup>®</sup> CPU</li> <li>■ 1 Mbyte MMU</li> <li>■ 2 DMAs</li> <li>■ 2 UARTs with Baud Rate Generators</li> <li>■ C/Serial I/O Port Oscillator</li> <li>■ Z8S180 Includes:                         <ul style="list-style-type: none"> <li>- Power-Down</li> <li>- Programmable EMI</li> <li>- Divide-By-One</li> <li>- Clock Option</li> <li>- 3.3V and 5V Version</li> </ul> </li> </ul> |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PACKAGE</b>           | 64-Pin DIP<br>68-Pin PLCC<br>80-Pin QFP  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>SUPPORT PRODUCTS</b>  | Z8S1800ZCO - Evaluation Board<br>ZEPMIP00001 - EPM <sup>™</sup> Manual   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PART NUMBER</b>       | <b>Z80182/Z8L182</b>   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>DESCRIPTION</b>       | Zilog Intelligent Peripheral (ZIP <sup>™</sup> )<br>Z8L182 = Low-Voltage Version   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PROCESS/SPEED</b>     | Z80182 = CMOS: 16, 33 MHz<br>Z8L182 = CMOS: 20 MHz   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>FEATURES</b>          | <ul style="list-style-type: none"> <li>■ Static Version of Z180<sup>™</sup> plus ESCC</li> <li>■ 2 Channels of Z85230 with 32-Bit CRC Not Available for 16 MHz</li> <li>■ 16550 MIMIC</li> <li>■ 24 Parallel I/O</li> <li>■ Emulation Mode</li> <li>■ 3.3V and 5V Version</li> </ul>   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PACKAGE</b>           | 100-Pin QFP<br>100-Pin VQFP  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>SUPPORT PRODUCTS</b>  | Z8018200ZCO - Evaluation Board<br>ZEPMIP00002 - EPM <sup>™</sup> Manual  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PART NUMBER</b>       | <b>Z80380/Z8L380</b>   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>DESCRIPTION</b>       | Z380 <sup>™</sup> Microprocessor<br>Z8L380 = Low-Voltage Z380  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PROCESS/SPEED</b>     | Z8L380 = CMOS: 10 MHz<br>Z80380 = CMOS: 16, 18 MHz   |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>FEATURES</b>          | <ul style="list-style-type: none"> <li>■ 16/32-Bit MPU</li> <li>■ Internal 32-Bit Datapaths and ALU</li> <li>■ 2 Clocks/Cycle Instruction Execution up to 4 Gbytes of Linear Addressing</li> <li>■ Enhanced Instruction Set</li> <li>■ 4 Banks of On-Chip Register Files</li> <li>■ Object-Code Compatible with Z80/Z180 Microprocessors up to 6 Programmable Memory Chip Selects</li> <li>■ 3.3V and 5V Version</li> </ul>                    |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>PACKAGE</b>           | 100-Pin QFP  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |
| <b>SUPPORT PRODUCTS</b>  | Z8038000ZCO - Evaluation Board<br>ZEPMIP00003 - EPM <sup>™</sup> Manual  |       |                    |         |        |     |      |        |  |       |  |       |  |     |  |   |     |                    |        |  |      |  |  |        |            |                   |  |       |  |      |  |   |                          |            |                 |  |                       |  |