40LP
40nm Process Technology

The Right Technology for the Right Application™
GLOBALFOUNDRIES 40LP process technology platform is ideal for power- and price-sensitive mobile and wireless applications with flexible mixed-technology options for RF, low voltage and automotive. 40LP also enables mmWave solutions for applications that require greater than 30GHz operation.

40LP provides up to 40% less power, 60% less area and significantly lower cost compared to 65nm technologies. The 40nm platform supports a wide choice of device component options to meet your exacting low-power product specifications.

Target Applications and Solutions
- mmWave Automotive Radar (40LP+RF+eNVM)
- Single-chip PMIC / motor control (40LP+eNVM)
- Automotive (Body Electronics / Power Train) (40LP+eNVM)
- Wearables (40LP+RF)
- NFC devices (40LP+eNVM)
- Industrial / Smart Meters (40LP)
Technology Overview

- 40nm LP with 1.1V CMOS logic
  + 4 core device Vt’s
  + 2.5V I/O with Overdrive (3.3V) and Underdrive (1.8V) options, and 1.8V I/O with Underdrive (1.5V) option
- APMOM, MIM and MOS capacitors
- eFuse macro
- Large suite of passive devices
- Wide choice of productized metal stack options
- Standard temperature range: -40°C to +105°C

IP Overview

The 40LP Platform IP portfolio includes a wide range of silicon-proven high performance, power-optimized solutions for a broad set of applications.

<table>
<thead>
<tr>
<th>Foundation IP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Cell 9T</td>
</tr>
<tr>
<td>SRAM &amp; ROM Compiler</td>
</tr>
<tr>
<td>PLL</td>
</tr>
<tr>
<td>ESD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interface IP</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDR3/2</td>
</tr>
<tr>
<td>SATA I/II</td>
</tr>
<tr>
<td>MIPI D-PHY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVM: eFlash</td>
</tr>
<tr>
<td>NVM: OTP</td>
</tr>
<tr>
<td>RAM</td>
</tr>
</tbody>
</table>

Contact GF for IP availability.

40nm Platform Extensions

The 40nm LP platform offers numerous technology options that enable you to further innovate and differentiate your design.

- RF models for high frequency wireless connectivity for low power applications
- Consumer and Automotive grade embedded NVM for MCU, IoT
- Grade 2 and 1 for high reliability, AEC-Q100 (Rev.G) qualified process

40nm High Performance and High Reliability eFlash solution

- Fast Speed
  * Read Access ~10ns
  * Sector Erase time ~10ms
  * Word Program speed ~10μs

- Small Macro
  * 0.066μm² bit cell
  * Optimized macro
  * Flexible macro form factor

- Cost Benefit
  * 30% smaller bit cell than 55nm

- High Density
  * NVM Memory density up to 16Mb

- Power Efficient
  * Active I_{R/FF} < 200μA/MHz (low-power mode)

- Reliable
  * Automotive grade
  * 10 year data retention

- Endurance
  * >200k Cycles

GLOBALSOLUTIONS® Design and Manufacturing Ecosystem

GLOBALSOLUTIONS is the sum of our internal resources and ecosystem partners, combined to efficiently enable the fastest time-to-volume. This ecosystem includes partners in all aspects of design enablement and turnkey services, OPC and mask operations, and advanced capabilities in assembly solutions.

The information contained herein is the property of GLOBALFOUNDRIES and/or its licensors. This document is for informational purposes only, is current only as of the date of publication and is subject to change by GLOBALFOUNDRIES at any time without notice. GLOBALFOUNDRIES, the GLOBALFOUNDRIES logo and combinations thereof are trademarks of GLOBALFOUNDRIES Inc. in the United States and/or other jurisdictions. Other product or service names are for identification purposes only and may be trademarks or service marks of their respective owners. © GLOBALFOUNDRIES Inc. 2017. Unless otherwise indicated, all rights reserved. Do not copy or redistribute except as expressly permitted by GLOBALFOUNDRIES.