Problem Statement

- Arm and partners have optimized library implementation but
  - Some has no idea of how to share as open source
  - Others create multiple open-source projects (e.g., cortex-string, arm math routines)
- Even shared, they are unknown to other groups/companies, thus unused
One library that rules all

Write in your subtitle here

• Establish and sustain a single open source library community to share all high quality library implementations from Arm and Arm partners to the whole Arm ecosystem
Arm Optimized Routines

Maths functions

Glibc maths functions
Android maths functions

Memory functions

Glibc memory functions
Android memory functions
Optimized Routines

• https://github.com/ARM-software/optimized-routines

• Licensed under MIT, with Arm Copyright Assignment Agreement

• Currently contains maths and memory/string functions (merged from the original cortex-strings)

• Successful story of reuse
  • All maths functions are in glibc and newlib
  • Migrated to Arm performance library (part of Arm commercial compiler for Linux)
  • Migrated to bionic boosted Geekbench performance
# Current List of functions

<table>
<thead>
<tr>
<th>Maths</th>
<th>String/memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cos</td>
<td>Memchr</td>
</tr>
<tr>
<td>Exp</td>
<td>Mempcy</td>
</tr>
<tr>
<td>Exp2</td>
<td>Memmove</td>
</tr>
<tr>
<td>Log</td>
<td>Memset</td>
</tr>
<tr>
<td>Sincos</td>
<td>Strchr</td>
</tr>
<tr>
<td>Pow</td>
<td>Strcmp</td>
</tr>
<tr>
<td></td>
<td>Strcpy</td>
</tr>
<tr>
<td></td>
<td>Strlen</td>
</tr>
</tbody>
</table>
Plan & Call for Action

• Plan
  • Add vect_math functions
  • Optimize more memory/string functions for latest architectures

• Call for action
  • Reuse: go optimized routines to find functions reusable to you
  • Contribute: contribute more functions to it
  • Extension: extend beyond maths, memory/string functions