MIMOS Accelerator Library (Mi-AccLib)
The digital data explosion has exceeded petabytes and entered the zettabyte era, resulting in a big data challenge. MIMOS Mi-AccLib offers parallelised data analysis to enable ultra-speed big data processing across a heterogeneous platform.

Overview
MIMOS Mi-AccLib is an accelerator library designed to enable ultra-speed big data processing with data and process parallelism. This MIMOS proprietary software library offers a heterogeneous hardware accelerated computing environment to leverage hardware acceleration through parallelisation. The library capitalises on different processor capabilities while maintaining application usage needs to parallelise data analysis.

Features
Mi-AccLib comprises the following features:

- **Text/String Analytics**
  This text/string library encompasses functions such as data matching, sorting, transformation, bitmapping, table operations (single/multiple columns key), date-searching and data cleansing. An application example is database data matching and cleansing using edit distance algorithm.

- **Financial Computation Algorithms**
  Financial applications can also be compute-intensive. Mi-AccLib offers optimisation on calculations such as Value-at-Risk (VAR), data aggregation, conversion, equity, interest-rate yield factor and Monte Carlo.

- **Generic Parallelised Library**
  The generic library provides generic APIs used for common functions such as sort and transform. It also includes specialised interfaces for security such as encryption/decryption functionalities, and various search/sort/transform algorithms.

- **Future Enhancements**
  A Parallel In-Memory Database library will offer the IMDB GPU platform to users with improved common operations for rational databases. For the image and video library, customised intrusion and motion detection features with functions such as dilation and erosion filters, connected component labelling and background subtraction are to be included.

Technology Benefits
The main impacts of Mi-AccLib are:

- **Ultra-Speed Data Processing**
  Mi-AccLib covers several areas for compute-intensive data such as financial and text/string operations and allows for users to directly use Mi-AccLib APIs for specific application needs, which run on multi-core CPU or GPGPU.

- **Transparent Heterogeneous Hardware Support**
  Mi-AccLib APIs are designed to be processor agnostic and can run across different hardware platforms with ultra-speed processing capabilities but still guarantees the reliability of the data.

Technology Summary

### Mi-AccLib
An accelerator library that capitalises on different processor capabilities while maintaining application usage needs by parallelising data analysis and processing.

**Industries:** Enterprise, Government, Finance

### Features
- Text/String analytics
- Financial computation algorithms
- Generic parallelised library
- Future enhancements

### Technology Benefits
- Ultra-speed data processing
- Transparent heterogeneous hardware support

**System Requirements**

<table>
<thead>
<tr>
<th>Mi-AccLib</th>
<th>Hardware Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Quad-Core (minimum)</td>
</tr>
<tr>
<td>Memory</td>
<td>Minimum 12GB of RAM memory</td>
</tr>
<tr>
<td>Disk Storage</td>
<td>Minimum 200GB of hard disk space</td>
</tr>
</tbody>
</table>

**Operating System**
- Windows® Server 2008 R2 (64 bit)

**GPU**
- Minimum 1 CUDA®-enabled NVIDIA® Graphic Card installed (compute capability at least 2.0)
- CUDA Toolkit
- NVIDIA GPU Computing SDK
- NVIDIA NSight

**Application Programming Interface**

**MIMOS Mi-AccLib system architecture**