Section II
Hybrid Microcircuits
Hybrid Microcircuits

1. Introduction.......................................................................................................II-1
2. Hewlett-Packard Company................................................................................II-2
3. Micropac Industries, Incorporated.....................................................................II-3
4. TRW..................................................................................................................II-4
5. Interpoint Corporation.......................................................................................II-5
## Hybrid Microcircuits

### Introduction

Two (Hewlett-Packard Company and Micropac Industries, Incorporated) of the three manufacturers listed herein meet the certification and qualification requirements of MIL-H-38534 for quality assurance level (class) K. Currently these manufacturers are not offering any off-the-shelf K level hybrids. They are manufacturing custom/semi-custom hybrids for high reliability and space applications.

The remaining manufacturer (Interpoint) listed herein meets all of the certification and qualification requirements of MIL-H-38534: quality assurance level (class) H. This manufacturer is included in the Core Suppliers Listing because several of their products have passed Goddard Space Flight Center (GSFC) qualification testing, including radiation (total dose and SEE) and life tests.

The accompanying information, provided for each manufacturer, is explained below.

<table>
<thead>
<tr>
<th>Address, Cage Code:</th>
<th>Self-explanatory.</th>
</tr>
</thead>
<tbody>
<tr>
<td>QML Class:</td>
<td>A single letter which identifies the quality assurance level of the QML hybrid microcircuit. “K”--Designates the highest reliability level provided for in MIL-H-38534. It is intended for space applications. “H”--Designates the standard minimum military quality level.</td>
</tr>
<tr>
<td>Product Type:</td>
<td>Generic functional description of products which have been certified/qualified.</td>
</tr>
<tr>
<td>Certified/Qualified Facility:</td>
<td>Location of certified/qualified facility(ies) which is (are) currently listed in QML38534</td>
</tr>
<tr>
<td>Package Information:</td>
<td>Characteristics of qualified hybrid packages.</td>
</tr>
</tbody>
</table>

**Note:** Information contained herein is subject to change by the manufacturer at any time.
| Manufacturing Audits/Surveys: | Lists dates of audits and/or surveys performed at the suppliers’ facilities and the name of the agency/company which was responsible; also indicates whether or not the suppliers were approved. |
Hewlett - Packard Company

<table>
<thead>
<tr>
<th>Address</th>
<th>Cage Code</th>
<th>Mfr. Audits/Surveys</th>
<th>Class</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical Communications Div 370 West Trimble Rd. San Jose, CA 95131</td>
<td>50434</td>
<td>DESC QML-9/94 (Approved)</td>
<td>K</td>
<td>Dick Fellows 408-435-6519</td>
</tr>
</tbody>
</table>

Certified/Qualified Facilities:

<table>
<thead>
<tr>
<th>Substrate Fabrication</th>
<th>Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Jose, CA</td>
<td>San Jose, CA</td>
</tr>
</tbody>
</table>

Package Information:

<table>
<thead>
<tr>
<th>Package Type:</th>
<th>Ceramic DIP</th>
<th>LCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seal Method:</td>
<td>Solder</td>
<td>Solder</td>
</tr>
<tr>
<td>Lead Count:</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Seal Perimeter:</td>
<td>1.28 inch</td>
<td>0.92 inch</td>
</tr>
<tr>
<td>Lead Finish:</td>
<td>Gold; solder</td>
<td>Solder</td>
</tr>
</tbody>
</table>

Note: Information contained herein is subject to change by the manufacturer at any time.
# Micropac Industries, Incorporated

<table>
<thead>
<tr>
<th><strong>Address</strong></th>
<th><strong>Cage Code</strong></th>
<th><strong>Mfr. Surveys/Audits</strong></th>
<th><strong>Class</strong></th>
<th><strong>Contact</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>905 East Walnut St. Garland, TX 75040</td>
<td>31757</td>
<td>DESC QML-12/93 (Approved)</td>
<td>K</td>
<td>Shirley Large 214-272-3571</td>
</tr>
</tbody>
</table>

## Product Type
- Optopower

## Certified/Qualified Facilities:

<table>
<thead>
<tr>
<th>Substrate Fabrication</th>
<th>Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garland, TX</td>
<td>Garland, TX</td>
</tr>
</tbody>
</table>

## Package Information:

**Opto:**

<table>
<thead>
<tr>
<th>Package Type:</th>
<th>Seal Method:</th>
<th>Lead Count:</th>
<th>Seal Perimeter:</th>
<th>Lead Finish:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic DIP</td>
<td>Solder</td>
<td>16</td>
<td>1.89 inch</td>
<td>Gold; solder</td>
</tr>
<tr>
<td>LCC</td>
<td>Solder</td>
<td>24</td>
<td>1.60 inch</td>
<td>Solder</td>
</tr>
<tr>
<td>TO can</td>
<td>Projection weld</td>
<td>8</td>
<td>2.27 inch</td>
<td>Gold; solder</td>
</tr>
</tbody>
</table>

**Note:** Information contained herein is subject to change by the manufacturer at any time.
### Interpoint Corporation

<table>
<thead>
<tr>
<th>Address</th>
<th>Cage Code</th>
<th>Mfr. Audits/Surveys</th>
<th>Class</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpoint Corporation</td>
<td>50821</td>
<td>DESC QML-4/87 (Approved)</td>
<td>H</td>
<td>Mike Friends</td>
</tr>
<tr>
<td>10301 Willows Road</td>
<td></td>
<td></td>
<td></td>
<td>206-882-3100</td>
</tr>
<tr>
<td>Redmond, WA 98073</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Product Type

- DC/DC Converters

#### Certified/Qualified Facilities:

<table>
<thead>
<tr>
<th>Substrate Fabrication</th>
<th>Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redmond, WA</td>
<td>Redmond, WA</td>
</tr>
</tbody>
</table>

#### Package Information:

- Package Type: Metal with peripheral leads
- Seal Method: Seam weld
- Lead Count: 12
- Seal Perimeter: 8.0 inch
- Lead Finish: Gold & Silver

**Note:** Information contained herein is subject to change by the manufacturer at any time.