REQUEST FOR PROPOSAL

For

200mm Silicon Wafer Production

Houston Methodist Hospital.
Corporate Supply Chain Management
8100 Greenbriar St.
Houston, Texas 77054

DATE: April 03, 2019
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I. PROJECT BACKGROUND AND OVERVIEW

INTRODUCTION

Houston Methodist Hospital (HMH) is seeking a qualified company that will be expected to provide the highest levels of 200mm Silicon Microstructure Wafer Production (Company). The Company’s performance is expected to be cost effective, safe, and timely. Included in this RFP is a scope of work and technical specifications that will support you in preparing your proposal.

Company shall submit a proposal to provide timeline, cost and delivery details to fulfill scope of work as listed in Exhibit A. All work shall be reviewed, inspected and approved by HMH.

SCOPE OF WORK

See Exhibit A.

CONTACTS

For scope of work and specifications questions, or to request access to the work site please direct all inquiries to;

Hani Yacouby  
Contract Administrator  
Supply Chain Management  
Phone: 832-667-5590  
Email: Hmyacouby@Houstonmethodist.org

Michael Lewis  
Manager of Supply Chain Management  
Supply Management  
Phone: 832-667-6134  
Email: Jmlewis@Houstonmethodist.org
II. PROPOSAL AND SUBMITTAL REQUIREMENTS

SUMMARY

The summary of the RFP requirements is listed below. Additional details to these are included in the following section.

1. Summarize your company profile
2. Detail similar production experience.
3. Provide the team with resumes for each key team member. Define current availability of each team member.
4. Provide information on company Differentiation.
5. Project Terms

The Proposal shall contain separate tabs for the following:

Section 1.0: - Company Profile – Please provide the following as a minimum:
- Name, address, telephone number and fax numbers.
- Contact person with title.
- Location of office(s) from which production services will be managed.
- Brief history of the Company.
- Company’s values and philosophy with emphasis on healthcare projects.

Section 2.0 – Similar Production Experience
- Provide detailed descriptions of at least three of your Company’s most recent projects of similar scope and complexity. Emphasis should be placed on work completed within the last three years by the specific personnel being designated for this project.
- Include relevant related projects that have been completed. Identify the costs of the projects and the timelines within which the project was initiated and completed.
- Include references, including names of contact persons (clients, owner’s representatives, and engineers), addresses and telephone numbers for at least three of the above-mentioned projects.

Section 3.0 – Production Team
- Provide an organizational chart graphically indicating how your company would staff and structure your proposed team for the production. Include delegation of responsibility and assignment of authority.
- Indicate the production assignment, role or area of responsibility of each individual.
- Include resumes for each proposed team member.
Section 4.0 – Company Differentiation

- Provide a description of the expertise, approach, and experience that would likely differentiate your company from competitors.
- Define the value provided by your company.
- Provide detail of production management tools and processes employed.
- Provide detailed information regarding quality control on the production and maintenance.

Section 5.0 – Project Terms

- Completed RESPONDENT’S PRICING AND DELIVERY PROPOSAL FORM included with this RFP.
- Schedule - Include a sequence and timetable of activities, including milestones necessary to complete the production using the design information provided. Please provide a realistic schedule, innovative ideas to ensure the completion of the production on time; or advise HMH of any conditions that may preclude the successful completion within the proposed time frame.
- A statement of terms is required. This statement shall include the proposal, its description of deliverables, team members, etc., and must be guaranteed for a period of ninety (90) days from the date of submission.

Section 6.0 – Deadline and Form for Submission – Submittal Location

- **DEADLINE:** HMH will receive Proposals until 4:00 PM on Monday, 5/06/2019. Packages must be labeled “Houston Methodist 200mm Silicon Wafer Production” and shown clearly on the outside of the package.
- Five (5) original proposals shall be submitted in a bound 8-1/2” x 11” format. In addition to hard copy proposals, you will submit an electronic copy via USB Drive.
- Submissions that are received late may be returned to Company unopened. Proposals that are sent to the incorrect location or received incomplete may be deemed non-responsive.
- Proposals must be enclosed in a sealed envelope (box or container) addressed to the Point-of-Contact person; the package must clearly identify the submittal deadline, project name and the name and return address of Company.
- There will be a Mandatory Pre-Proposal meeting scheduled to cover all bidder questions. Location, time & date will be sent out to each responding bidder.
Please submit proposals to the following Location and Point-of-Contact:

**Mail to:**
Houston Methodist Hospital
Corporate Offices
8100 Greenbriar St.
3rd Floor Supply Chain
Houston Texas, 77054
Attn: Hani Yacouby

**Deliver to:**
Houston Methodist Hospital
Corporate Offices
8100 Greenbriar St.
3rd Floor Supply Chain
Houston Texas, 77054
Attn: Hani Yacouby
III. RESPONDENT’S PRICING AND DELIVERY PROPOSAL

Proposal of:  
(Respondent’s Company Name)

To:  Houston Methodist Hospital  
Supply Chain Management  
8100 Greenbriar St.  
Houston, Texas  77054

For:  200mm Silicon Wafer Production

Having carefully examined the previously issued RFP, including the bidding requirements, terms & conditions, specifications, description of the scope of work, and all other documents referred to therein, as well as conditions affecting the work, the undersigned proposes to furnish silicon wafer production services based on the following terms.

This proposal is based on documents issued April 01, 2019 and all addenda issued thereto.

Base Bid

We propose to furnish all labor, materials, equipment, tools, machinery, facilities and utilities, and all other services necessary for the completion at the highest level of quality for Houston Methodist Silicon Wafer Production, in accordance with the RFP, for the proposed cost of:

______________________________________________________________________ DOLLARS

Amount written in words (This Governs)

($ ______________________________________________________________________)

Amount written in figures

Bid Pricing Schedule

Company will complete the following Bid Pricing Schedule to show line item detail for each proposed cost.

Schedule

Once the Company is selected, we will require a schedule showing a proposed schedule for production and delivery.
**RESPONDENT’S PRICING AND DELIVERY PROPOSAL**

Bid Pricing Schedule

*Section 1 - Page 1 of 1*

**Bid Opening Date:** ______________ at __________

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Extended Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1</strong> Process Development &amp; Wafer Design / shipment of “Minesweeper” wafers</td>
<td>5</td>
<td></td>
<td></td>
<td>Initial invoice to begin Phase 1, Payable within 7 days of contract execution.</td>
</tr>
<tr>
<td><strong>Phase 2</strong> Delivery of 15 Qualification Wafers</td>
<td>15</td>
<td></td>
<td></td>
<td>Invoiced and Payable Net 30 upon completion of Phase 2 and receipt of wafers.</td>
</tr>
<tr>
<td><strong>Phase 3</strong> Initial 1000 Wafers delivered for validation and quality check</td>
<td>1000</td>
<td></td>
<td></td>
<td>Invoiced and Payable Net 30 upon completion of Phase 3 and receipt of wafers.</td>
</tr>
<tr>
<td><strong>Phase 4</strong> Production of 3 lots of 1000 Methodist Approved Wafers</td>
<td>3000</td>
<td></td>
<td></td>
<td>Invoiced and Payable Net 30 upon receipt of each lot of 1000 wafers.</td>
</tr>
<tr>
<td><strong>Misc. Fees</strong> Taxes &amp; Fees (VAT, GST, sales, etc.)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


List of Proposed Primary Subcontractors:

If awarded the contract for this project, the Company proposes to engage the following firms as noted:

<table>
<thead>
<tr>
<th>Subcontract Work Type</th>
<th>Name of Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>2. ____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>3. ____________________</td>
<td>____________________</td>
</tr>
<tr>
<td>4. ____________________</td>
<td>____________________</td>
</tr>
</tbody>
</table>

It is understood that HMH reserves the right to reject any or all proposals, to accept or reject any or all alternates, or to accept any combination of alternates considered advantageous and to waive any informality for irregularity in any proposal which, in its judgment, is in its own best interests.

The undersigned certifies that the amounts contained in the proposal have been carefully checked and are submitted as correct and final.

Respectfully Submitted By:

______________________________  ________________________________
(Company’s Printed Name)         (Title)

______________________________  ________________________________
(Authorized Signature)           (Date)
EXHIBIT A

Scope of Work

This information below is the basic specifications Houston Methodist is seeking. Each bidder is required to complete a Confidentiality Agreement before receiving the Full Wafer Production Specifications.

Project Name: 200mm Silicon Wafer Production
Project Description: Houston Methodist is seeking a vendor for micro fabrication processing of 200mm micro pillar wafers. HM is requesting a total of 4000 wafers. Please use the information below as a high level specification.

1. Wafer

Starting Materials: 200mm prime wafers, P-type, boron doped, <100>, 0.003-0.005 Ohm-CM. Single side polished. No flat. Semiconductor industry standard quality.

Process step: Thermal oxide film deposition
Equipment: Thermal furnace
Objective: Deposit 500 nm thick oxide in thermal oxidation furnace. Uniform film with across wafer/across batch variation <2%.

2. Photolithography with Stepper

Process step: Stepper lithography of arrays of 2.6\(\mu\)m circles
Equipment: Stepper
Objective: Stepper lithography process. Stitch dies to get full wafer pattern without street. 4.5 mm exclusion ring covered by photoresist on wafer edge. Pattern consists of high density arrays of 2.6 \(\mu\)m circles with <0.6\(\mu\)m space.

3. RIE of oxide

Process step: RIE of oxide mask layer
Equipment: RIE etcher
Objective: Reactive Ion Etch through 500nm oxide mask layer.

4. ICP DSE of micro pillars

Process step: Deep silicon etching of micro pillars
Equipment: ICP DSE Etcher
Objective: ICP DSE to get straight micro pillars with \(\sim 15\mu\)m height and sidewall scalloping <30nm. Micro pillar diameter, 2.6+/-0.05\(\mu\)m diameter; space between pillar, <0.6\(\mu\)m.
5. **Low stress nitride film coating**

Process step: Nitride film deposition  
Equipment: LPCVD nitride furnace  
Objective: Clean the built-up polymer on pillar sidewalls. Deposit ~200nm low stress nitride film in LPCVD furnace. Resulting silicon rich nitride with 50-250mPa stress. Better than 5% across wafer film thickness uniformity. Across batch film thickness variation <10%.

6. **RIE of nitride on backside and pillar tops**

Process step: RIE of nitride on backside  
Equipment: RIE etcher  
Objective: Reactive Ion Etch removal of nitride layer on backside of wafer.

Process step: RIE of nitride on pillar tops.  
Equipment: RIE etcher  
Objective: Reactive Ion Etch remove nitride on pillar top, while keep nitride on sidewall and at bottom of pillars.
Exhibit B

Houston Methodist Agreement Terms & Conditions:

1. **Pricing**

   Total Bid should be:
   - Inclusive of taxes & fees (VAT, GST, sales, etc.)
   - Inclusive of shipping costs, insurance, title passes at HM dock

   Payment structure:
   - Phase 1: Process Development & Wafer Design / shipment of 5 “minesweeper” wafers. Payable within 7 days of contract execution.
   - Phase 2: Delivery of 15 Qualification Wafers. Payable Net 30 on receipt.
   - Phase 3: Initial 1000 Wafers delivered for validation and quality check. Payable Net 30 on receipt.
   - Phase 4: Production of 3 lots of 1000 Houston Methodist Approved wafers. Payable Net 30 on receipt of each lot of 1000 wafers.

   Approval by Methodist for Vendor to move to Phase 3 or Phase 4 will be at Methodist’s sole determination. If Methodist decides to not progress to either Phase 3 or Phase 4 for any reason, Methodist may terminate the Agreement upon written notice to Vendor without further obligation.

2. **Indemnification**

   Vendor will indemnify, defend and hold harmless Methodist, and its Affiliates, officers, directors, employees and contractors from and against any claim, suit, demand or action (including all losses, liabilities, damages, settlements and attorney’s fees and expenses) based on or arising out of Vendor’s negligence or willful misconduct, violation of any applicable law, or breach of this Agreement.

   Methodist will indemnify, defend and hold harmless Vendor, its officers, directors, employees and contractors from and against any claim, suit, demand or action (including all losses, liabilities, damages, settlements and attorney’s fees and expenses) based on or arising out of Methodist’s negligence or willful misconduct, violation of applicable law, or breach of this Agreement, but excluding any claims of infringement by the Product of any third-party patent, trademark, mask works rights, copyrights, trade secret or other similar proprietary interest that arises through the use of any Vendor’s Background Intellectual Property.

   Each party’s indemnification shall be limited to its proportionate liability.

3. **Insurance**

   Vendor shall carry and maintain, at its own expense (including any applicable deductibles or retentions), as long as respective, applicable statute(s) of limitation or repose are in effect
relating to the specific purposes of this Agreement, insurance policies of the kind and limits
listed below and with insurers with an A.M. Best's Rating of not less than A-VIII at all times.
Accordingly, Vendor will maintain the following insurance requirements:

1) Commercial General Liability including Premises/Operations, Products/Completed Operations, Contractual Liability, Broad Form Property Damage, Bodily Injury, Personal/Advertising Injury with minimum limits of $1,000,000 per occurrence and $1,000,000 general aggregate.

2) Excess or Umbrella Liability with minimum limits of $4,000,000 each occurrence and $4,000,000 annual aggregate in excess and following form of a. through c. above. Total limits required may be satisfied with any combination of primary and excess coverage.

To the fullest extent allowed by law, Methodist and its, officers, directors, trustees, employees, and agents shall be named as Additional Insureds on a primary and non-contributory basis on Vendor’s policies above with a Waiver of Subrogation clause in favor of Methodist on policies above. There shall be no exclusion or limitation on Vendor’s policies for claims arising from clinical trials.

All such insurance above shall operate independent and apart from Vendor’s obligations hereunder, and the insurance requirements herein are not to be considered as indicative of the ultimate amounts and types of insurance that Vendor may need to protect its own interests.

If any of the insurance policies referenced above are claims made coverage, and if any of Vendor’s policies are cancelled, non-renewed, or, if Vendor’s operation is sold or ceases to exist, Vendor shall procure at Vendor’s sole expense continuance of coverage with an extended reporting period with the same above terms and conditions which specifically continue to provide insurance that meets the terms and conditions of this Section 13. It is Vendor’s responsibility to ensure that the insurance requirements listed above are in effect for the full term of this Agreement and for any period of time required thereafter to provide continuance of coverage needed to address potential claims that may arise. Cancellation of coverage or failure to maintain required coverage shall be considered a breach of this Agreement.

Vendor’s services under this Agreement do not require its on-site presence and/or the onsite presence of independent contractors at the Methodist facility to execute the services or provide Product under this Agreement. Vendor further acknowledges that Methodist requires certain assurance and insurance from vendors that either have an on-site presence and/or utilize independent contractors at any Methodist facility; therefore, if the Parties determine that Vendor’s on-site presence and/or the use of independent contractors is required, the Parties will amend this Agreement to update this section to bring the Agreement into compliance with Methodist’s policies and procedures which will clear Vendor for such services required by Methodist.
Within 120 days after the effective date of this Agreement, Vendor will provide copies of the endorsements applying to blanket wording provisions and/or applicable endorsements for insurance coverage’s described above naming Methodist as Additional Insured and providing Methodist with Waivers of Subrogation as required above. All such insurance shall be kept current throughout the entire term of this Agreement, and shall provide for at least thirty (30) days’ advance notice to Methodist if coverage is to be non-renewed, cancelled or materially modified in some way so as to not provide the same minimum coverage’s or limits of insurance as cited above. Within ten (10) business days of the execution of this Agreement, and at the renewal of each of the above required insurance coverage’s. Vendor shall provide certificates of insurance, evidencing full compliance with the insurance requirements contained herein to the following address (certificate holder):

ATTN: Corporate Risk & Insurance Department
The Methodist Hospital System, The Methodist Hospital Annex
1130 Earle Street, Suite 200, Houston, Texas 77030
Office: (713) 383-5101, Facsimile: (713) 383-5190
Email: cputnam@houstonmethodist.org

4. Warranty

Vendor warrants and represents that Products delivered to carrier for shipment to Methodist, or delivered directly to Methodist, will at the time of such delivery: (1) conform to published specifications agreed to by the parties; (2) not be adulterated or misbranded within the meaning of the U.S. Food, Drug and Cosmetic Act; and (3) be of good quality and free from defects in materials and workmanship; and (4) be manufactured in accordance with ISO standards and Vendor’s existing production quality controls, and be subject to Methodist’s acceptance.

5. Product Acceptance

Methodist shall have a period of 30 days to inspect delivered Product. In the event that the Product fails and such failure or non-conformance is directly attributable to the Vendor design, engineering, materials selection, manufacturing or quality control process for the Product, Methodist shall provide to Vendor the root cause report at Vendor’s expense including Product samples so that Vendor can replicate with its own physical failure analysis at its own expense to verify such report. If Vendor fails to provide reasonable evidence that the Product meets wafer acceptance criteria within a reasonable time frame for such analysis not to exceed 30 days, Vendor will replace the number of Product wafers impacted at its own expense on a commercially reasonable delivery schedule or issue a credit to Methodist. Methodist shall have no obligation to pay for Deliverables that do not meet specifications.

6. Quality Assurance and Record Keeping

Vendor will have an appropriate quality assurance process as part of the production of the Product and will provide Methodist with applicable documentation of same. Methodist may visit Vendor’s manufacturing facility at mutually agreed upon times to observe the development or production of the Product. Vendor will retain manufacturing records for each batch of Product delivered to
Methodist for a minimum of ten (10) years after the date of manufacture. These records will be made available to Methodist through an electronic portal maintained by Vendor.

7. **License**

If Vendor is unable to perform the Agreement as agreed (unable to perform, in breach of the agreement or no longer in existence), Vendor will license the process at no cost to Methodist.

8. **Scale Up Capacity**

Describe future scale up capacity: __________________________

REFERENCES AND GENERAL INFORMATION QUESTIONNAIRE

A. **General**

1. **Company Name and Address:**

   __________________________________________________
   __________________________________________________
   __________________________________________________

2. **Previous Name and Address of Company:**

   __________________________________________________
   __________________________________________________
   __________________________________________________

3. **Name and Address of Current Affiliated Companies (Parent, Subsidiary, Divisions):**

   __________________________________________________
   __________________________________________________
   __________________________________________________

4. **Describe details of any reorganization, acquisition or merger regarding your Company in the past two (2) years.**

   __________________________________________________
   __________________________________________________
   __________________________________________________

5. **Is your Company currently for sale or involved in any transactions to expand or become acquired by another organization? If yes, please explain.**
6. Provide any details of all past or pending litigation or insurance claims arising from your Company furnishing an item or service similar to that described in this document.

7. Company Officers:

Please provide the following information for each corporate officer, partner, or owner.

1. Name: ____________________  3. Name: ____________________
   Title: ____________________  Title: ____________________

2. Name: ____________________  4. Name: ____________________
   Title: ____________________  Title: ____________________

8. List all individuals, groups, corporations, etc. that hold 25% or greater equity in the company. (Attach additional pages if necessary)

   (Name) ____________________ Telephone No. ____________________

9. Business organization

   _____ Individual _____ Partnership _____ Corporation _____ Other

10. Please identify below all projects your Company has had under contract which were terminated prior to completion within the last 3 years, if any, including the circumstances surrounding such early termination.

   ____________________
   ____________________
   ____________________

   B. Financial Status
1. Has your Company, or any of its parents or subsidiaries, ever had a Bankruptcy Petition filed in its name, voluntarily or involuntarily? (If yes, specify date, circumstances, and resolution).

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Is your Company currently in default on any loan agreement or financing agreement with any bank, financial institution, or other entity? (If yes, specify details, circumstances, and prospects for resolution).

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. Financial References - Provide on an attached page at least 2 financial references (1 trade reference and 1 financial institution/bank reference). List should include Company Name, Mailing Address, Telephone Number, FAX Number, Contact Person and Length of Financial Relationship.

C. Personnel

1. Number of Employees:

   Management
   Administrative
   Production
   Other

D. Client Reference

Provide per separate attachment a client reference list of organizations for whom you’re Company has provided similar goods or services. Said list should include: Company Name; Mailing Address; Contact Name and Telephone Number; Project/System Description; and Year Implemented. A minimum of 3 are required.