

Purpose and Objectives: The intent of this **Special Sources Sought Notice** is to identify potential Small Businesses especially any SDVOSB offerors capable of providing a Proto Laser U4 System and components as listed in the attached Statement of Need. In addition, we are also seeking any and all interested parties capable of manufacturing these items, especially **Small Business manufacturers**. These are for the VA Medical Center (HERL) in Pittsburgh, PA 15240. Responses to this Special Sources Sought Notice should demonstrate the firm's ability, capability, and responsibility to provide the principal components of supplies listed in the attached document. Responses should include the following information: Business name, address, Business point of Contact. All information is to be submitted via e-mail at Ronald.Kline@va.gov. Information provided will not be returned. All responses shall be in the English Language. Responses are due by 12:00 pm (EST) on Friday, March 23, 2018. No submissions will be accepted after this date and time. Questions can be submitted electronically to at Ronald.Kline@va.gov. This is a Special Sources Sought Notice and submissions will be used for informational and planning purposes only. This notice does not constitute a formal Request for Quote (RFQ), nor is the government obligated to issue an RFQ. In addition, the Government does not intend to pay for any information provided under this notice. The Government is not obligated to notify respondents of the results of this survey.

STATEMENT OF NEED

ProtoLaser

SALIENT CHARACTERISTICS

1.01 Research and Development or PCB Prototyping Laser

- A. The laser machine shall be the ProtoLaser U4 model as manufactured by LPKF Laser and Electronics, Inc., or equal.**
- B. The laser machine shall be designed for use in a laboratory environment and include an acoustic/safety cabinet featuring an integrated safety switch.**
- C. The laser movement shall be controlled via galvanometer scanners and focused with theta lens.**
- D. The laser pulse frequency shall be Q-Switch controlled.**
- E. The laser system shall include a doubled 532nm source (PL-S4), or tripled to 355nm (PL-U4).**
 - 1. The laser machine shall have integrated control electronics, located beneath the working table.**
 - a. The laser machine shall have 0.4” or approximately 10 mm of Z axis clearance.**
 - 2. The laser machine shall have a maximum working area of 9” x 12”.**
 - 3. The laser machine shall have a movement resolution of 0.01 mils of the work table.**
 - 4. The laser machine shall have a repetition accuracy of +/- 2um (0.08 mils)**
 - 5. The laser machine shall allow for software control of the beam travel speed, pulse frequency, output power, number of repetitions and the focal height.**
 - a. Travel speed adjustable up to 500 mm/sec**
 - b. Frequency adjustable from 25-300 kHz (S4 and U4)**
 - 6. The laser beam width shall be ~ 23um (S4) or 20um (U4) at the focal point.**
 - 7. The laser system must perform surface metallization removal using an Laser & Electronics hatch and delaminate process which removes metallization from various PCB substrates; ProtoLaser S4 and U4 models.**
 - 8. The laser machine shall have integrated lighting for clear viewing of the tool as it works and for illumination during fiducial recognition.**

- 9. The laser machine shall have a pilot laser for rough positioning of the material in the working area.
- F. The laser machine shall have an integrated vacuum table with replaceable air-permeable insert for material backing.
- G. The laser machine shall have a fiducial recognition camera system integrated in the CircuitPro or CircuitMaster software for automated positioning.
 - 1. The camera shall be used for:
 - a. Recognition of fiducial marks/holes and subsequent software adjustment of the data to account for any offset
 - b. Inspection of drill holes and cut lines
 - c. Reloading of project materials for re-work purposes
- H. The laser machine shall require a vacuum system.
 - 1. shall provide an optional HEPA filter and deep chemical filter dust extraction system, variable speed, software controlled.
- I. The laser shall be powered by standard 110-230VAC, 50/60Hz power and include a power cord, plug and replaceable fuse.
- J. The laser shall be internally cooled within the machine.
- K. The laser shall include CircuitPro and, if necessary, CircuitMaster software for data preparation and machine control.
 - 1. The CircuitPro PL software shall import PCB design files from all popular CAD formats including Gerber, Gerber-X, Excellon, HP-GL, DXF, Sieb and Meyer, ODB++, and others.
 - 2. The CircuitPro PCB software shall employ arbitrary polygon algorithms to calculate the most efficient tool/laser path for insulation of circuits, rubouts, and contours.
 - 3. The CircuitPro PCB software shall output LMD machine control files for use by CircuitMaster.
 - 4. The CircuitMaster software shall automatically keep track of the usage time.
 - a. The CircuitPro or CircuitMaster software tasks or “tool” settings can be user customized for use with new materials or for the creation of specialized tools.
- L. The supplier shall have a toll free, technical support phone number open from 8AM to 5PM PST staffed by a technician trained in the use, operation and repair of the equipment.

- M. The supplier shall have an online internet presence where a customer can purchase consumables, download user manuals, and contact technical support after hours via trouble ticket.
- N. The supplier shall offer technical support free of charge during the initial one year warranty period and during extended warranty periods.
- O. The supplier shall offer several purchase options for training and maintenance which can be ordered as needed.

Part 2.

Key Component: Multilayer PCB Lamination Press

- A. The multilayer PCB lamination press shall be the MultiPress S as manufactured by LPKF Laser & Electronics, Inc., or equal.
- B. The multilayer PCB lamination press shall be a desktop unit designed for use in a laboratory environment.
- C. The multilayer PCB lamination press shall utilize microprocessor controlled pressure, time and temperature profiles.
 - 1. The multilayer PCB lamination press shall have nine programmable pressure, time and temperature profiles.
 - a. The multilayer PCB lamination press shall have pre-set profiles as well as the ability to customize profiles.
 - b. The multilayer PCB lamination press shall contain profiles for flexible and RF materials.
- D. The multilayer PCB lamination press shall have a maximum laminating area of 9" x 12".
 - 1. The multilayer PCB lamination press shall support a maximum layout area of 7.8" x 10.8"
- E. The multilayer PCB lamination press shall support a maximum of eight layer PCBs.
- F. The multilayer PCB lamination press shall support a maximum laminating pressure of 286 N/ sq. cm at 9" x 12".
- G. The multilayer PCB lamination press shall have a maximum temperature of 480 °F.
- H. The multilayer PCB lamination press shall come with an automatic hydraulic unit.
- I. The multilayer PCB lamination press shall have a LCD display with navigable menu.

- J. The multilayer PCB lamination press shall have an approximate pressing time of 90 minutes.
- K. The multilayer PCB lamination press shall have dimensions of 23.6" x 24.4" x 20.9"
- L. The supplier shall have a toll free, technical support phone number open from 7AM to 5PM PST staffed by a technician trained in the use, operation and repair of the equipment.
 - 1. The supplier shall have an online internet presence where a customer can purchase consumables, download user manuals, and contact technical support after hours via trouble ticket.
- M. The supplier shall offer technical support free of charge.

Part 3. Rapid PCB Milling Machine

- A. The PCB milling machine shall be the ProtoMat S63 as manufactured by LPKF Laser & Electronics, Inc., or equal.
- B. The PCB milling machine shall be designed for use in a laboratory environment and include an acoustic cabinet featuring an integrated safety switch.
- C. The PCB milling machine shall utilize microprocessor based control of X, Y, and Z axis control of the milling head.
 - 1. The PCB milling machine shall be controlled by USB connection to a user supplied computer.
 - 2. The PCB milling machine shall have integrated control electronics, located beneath the working table.
 - a. The PCB milling machine shall have 1.4" of Z axis travel, controlled by stepper motor with clearance of 0.9" with the optional vacuum table installed
 - 3. The PCB milling machine shall have a maximum working area of 9" x 12".
 - 4. The PCB milling machine shall have a movement resolution of 0.02 mils
 - 5. The PCB milling machine shall have a repetition accuracy of +/- 0.04 mils
 - 6. The PCB milling machine shall have a maximum drilling speed of 120 strokes per minute
 - 7. The PCB milling machine has a maximum X/Y travel speed of 6" per sec/150mm per second

8. The PCB milling machine shall have depth limiter foot with hardened material to minimize wear for this consumable item.
 - a. The depth limiter foot must follow the material surface allowing the z-drive to lift and lower with small intolerances in the substrate and metal thickness.
 - b. The depth limiter foot contact area must be comprised of a composite resin material to minimize abrasive contact with the material surface
 - c. The depth limiter foot can also be removed for 2.5D controlled depth engraving applications or replaced with a non-air foot as desired by the operator.
9. The 2.5D controlled depth engraving shall be an included function allowing for pocket milling and peck drilling up to a max depth of ~8mm.
10. The PCB milling machine shall have integrated LED head lighting for clear viewing of the tool as it works.
- D. The PCB milling machine shall have a variable 60,000 RPM motor with spindle speeds on each tool assigned within the included CircuitPro software.
- E. The PCB milling machine shall have an optional vacuum table.
- F. The PCB milling machine shall have a fiducial recognition camera integrated with the machine driver software for automated alignment of double sided boards. Fiducial Camera alignment shall be fully automated with auto-capture and auto adjustment for material offset.
 1. The camera shall not require guide assist paper and will be used for:
 - a. Calibration of the machine (orthogonality, tool bar, work table)
 - b. Recognition of fiducial marks/holes shall be fully automated as well as subsequent software adjustment of the milling data to account for any offset
 - c. Inspection of drill holes and cut lines
 - d. Automated measurement of tool cut widths
 - e. Allow for manual measurements of traced, drill sizes, pad size, etc.
- G. The PCB milling machine shall require a HEPA filtered vacuum system.
- H. The PCB milling machine shall be powered by standard 120-240VAC, 50/60Hz power and include a power cord, plug and replaceable fuse.
- I. The PCB milling machine shall include a 15 position tool exchange bar

- J. The PCB Milling Machine shall include CircuitPro software for data preparation and machine control.**
- 1. Software for machine operations must include setup wizard capabilities on the front end helping to guide the operator through: design import, tool assignment and system operations with templates saved for single sided, double sided and multilayer designs.**
 - 2. Process steps must include options for plating and lamination press that modify based on the method chosen.**
 - 3. The software shall produce a concentric milling path and smart adjacent path algorithm reducing the milling time required (less head lifting/lowering during operation)**
 - 4. Software shall alert the operator of the option to change the tool after a programmable length of tool use. . If another identical tool is loaded in the tool bar, the machine will retrieve it and continue working unattended**
 - 5. The software shall be operational without the need of a hardware dongle**
 - 6. All tooling shall be 100% tungsten carbide.**
- K. The supplier shall have a toll free, technical support phone number open from 8AM to 5PM PST staffed by a technician trained in the use, operation and repair of the equipment.**
- 1. The supplier shall have an online internet presence where a customer can purchase consumables, download user manuals, and contact technical support after hours via trouble ticket.**
- L. The supplier shall offer technical support free of charge during the initial one year warranty period and during extended warranty periods.**
- M. The supplier shall offer several purchase options for training and maintenance which can be ordered as needed.**

The contractor shall deliver required items to the following address:

**VA Pittsburgh Healthcare System/HERL
6425 Penn Avenue, Suite 400 offices, B101 machine shop,
@ Bakery Square
Pittsburgh, PA 15206**

DISCLAIMER

This RFI is issued solely for information and planning purposes only and does not constitute a solicitation. All information received in response to this RFI that is marked as proprietary will be handled accordingly. In accordance with FAR 15.201(e), responses to this notice are not offers and cannot be accepted by the Government to form a binding contract. Responders are solely responsible for all expenses associated with responding to this RFI.

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