



# Sierra Circuits, Inc.

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 Send RFQs to: files@protoexpress.com  
 www.ProtoExpress.com

# Quotation

<b>Quote Number:</b> Q237181-5
<b>Quote Date:</b> Oct 21st, 2014
<b>Quote Valid Till:</b> Nov 21st, 2014

<b>Customer</b> <b>University of Maryland</b> Payment Terms: Net Credit Approved	<b>Address:</b> Physics Department University of Maryland College Park Maryland 20742 United States	<b>Buyer: Jack Touart</b> <b>Phone:</b> 301-405-5975 <b>Email:</b> touart@physics.umd.edu <b>Fax:</b>	<b>Account Manager : Kimberly Lee Lerma</b> <b>Phone:</b> 1-408-735-7137x9834 <b>Email:</b> kimberlyl@protoexpress.com <b>Fax:</b> 1-408-735-1408
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**PART NUMBER:** Igloo2\_Umd\_Mezz **REV:** **ASSEMBLY PART NUMBER:** Igloo2\_Umd\_Mezz---ASSY **REV:**

Quote Line Item	Quantity	Turn Time	Price	NRE	Testing	Other	Line Total
Q237181-5A PCB Fabrication Notes:	10 Board(s)	5 Days	\$324.43 Piece Price	\$0.00 (Tooling waived)	\$0.00 (Testing will be done, charges waived)	\$0.00	<b>\$3244.30</b>
Q237181-5B PCB Fabrication Notes:	30 Board(s)	5 Days	\$145.81 Piece Price	\$0.00 (Tooling waived)	\$0.00 (Testing will be done, charges waived)	\$0.00	<b>\$4374.30</b>
Q237181-5C Assembly Labor Notes:	10 Assemblies	5 Days	\$175.57 Piece Price	\$0.00 (Tooling waived)	\$0.00 (Testing will be done, charges waived)	\$0.00	<b>\$1755.70</b>
Q237181-5D Assembly Labor Notes:	30 Assemblies	5 Days	\$122.56 Piece Price	\$0.00 (Tooling waived)	\$0.00 (Testing will be done, charges waived)	\$0.00	<b>\$3676.80</b>
Q237181-5E PCB Fabrication Notes:	12 Board(s)	5 Days	\$270.36 Piece Price	\$0.00 (Tooling waived)	\$0.00 (Testing will be done, charges waived)	\$0.00	<b>\$3244.32</b>

**Special Notes:**

- 1.) This quote is for consigned assembly. Customer will supply parts on the BOM line items.
- 2.) Customer to supply all components (tape n reel) with 6? leader and 5% attrition on Qty's that are above 100.
- 3.) For all consigned components. All material must be properly labeled and a legible PN should be shown.
- 4.) For all (tape n reel components. It is required that they be consigned on 1 single continuous tape.
- 5.) This consigned quote does not include wire bonding and performing any tests on finished assemblies.
- 6.) All consigned IC must be packaged properly in either tape n reel, tubes and trays.
- 7.This must be ROHS assembly as there are ROHS compliant BGA's on this board.

**Send any assembly components kit to:**  
**Sierra Assembly Receiving**  
 306 Potrero Ave  
 Sunnyvale, CA 94085, USA  
 (Always include your Company name and Quote Number with your kit)

**KITTING GUIDELINES**

A detailed kitting guide is available on our website at [www.protoexpress.com/terms](http://www.protoexpress.com/terms). You must refer to that once you are ready to place an order.

<b>Layers</b>	: 10	<b>Indv Brd Dimensions</b>	: 5.0393 in x 5.5118 in	<b>Array</b>	: No
<b>PCB Fabrication Spec (IPC Spec)</b>	: IPC-600G Class 2	<b>Scoring</b>	: No	<b>Solder Mask Type</b>	: LPI
<b>Material</b>	: FR4	<b>Dicing</b>	: No	<b>Solder Mask Sides</b>	: Top and Bottom
<b>Finished Thickness</b>	: 0.062 inches	<b>Milling</b>	: None	<b>Solder Mask Color</b>	: Green
<b>Thickness Tolerance</b>	: Plus or Minus 10%	<b>UL Required</b>	: No	<b>Solder Mask Finish</b>	: Standard (Semi-Gloss)
<b>Surface Finish</b>	: Immersion Silver	<b>ROHS compliant</b>	: No	<b>Solder Mask Via Opens</b>	: Covered on both sides
<b>Surface Finish 2</b>	: None	<b>Edge Plating</b>	: No	<b>Carbon Ink</b>	: No
<b>Gold Fingers</b>	: No	<b>Electrical Test</b>	: Yes	<b>Silk Screen Sides</b>	: Both
<b>Outer Layer Finish Copper</b>	: 1 Oz	<b>Controlled Impedance</b>	: None	<b>Silk Screen Color</b>	: White
<b>Inner Copper</b>	: 1 oz Inners	<b>Controlled Dielectric</b>	: No	<b>Logo Allowed</b>	: In copper or silk screen

<b>Gerbers provided?</b>	: Yes	<b># of Holes Per Board</b>	: 1045	<b>Via in Pad</b>	: Yes
<b>Layer order provided?</b>	: Yes	<b>Minimum Hole Size</b>	: 11.02 mils	<b>Filled Vias</b>	: Non-Conductive
<b>Board outline provided?</b>	: Yes	<b>Aspect ratio</b>	: #	<b>SM Plugged Vias</b>	: No
<b>Drill file provided?</b>	: Yes	<b>Minimum Annular Ring Width (Component Holes)</b>	: 4 mil	<b>Minimum Drill to Copper distance</b>	: 0.007 inches
<b>Fab drawing provided?</b>	: No	<b>Internal Slots</b>	: None	<b>Socket/BGA Pitch</b>	: 1mm
<b>IPC Netlist Provided?</b>	: No	<b>Internal Cutouts</b>	: None	<b>Blind vias</b>	: No
<b>Additional Customer Specification</b>	: No	<b>Counter Sink</b>	: No	<b>Buried vias</b>	: No
<b>Assembly BOM Available ?</b>	: Yes	<b>Counter Bore</b>	: No	<b>Controlled depth drilling</b>	: No
<b>Flex Board?</b>	: No	<b>Edge Plated Holes</b>	: No	<b>Cross Section certificate</b>	: No
<b>ITAR?</b>	: No	<b>Min Trace (Outer layer)</b>	: 5 mils	<b>Micro Section Coupon</b>	: No
<b>Arrays need to be created by Sierra ?</b>	: No	<b>Min Space (Outer layer)</b>	: 4.9 mils	<b>Medical Application</b>	: Choose
<b>Individual Route</b>	: Yes	<b>Min Trace (Inner layer)</b>	: 5 mils	<b>Assembly Specification (Class)</b>	: IPC-A-610 Class2
<b>Route and Retain</b>	: No	<b>Min Space (Inner layer)</b>	: 4.9 mils	<b>Number of Line Items to be assembled</b>	: 52
<b>Total Number of components (per board)</b>	: 279				

# Not sure due to missing information    ## Not sure due to discrepancy

**Generic Terms & Conditions:**

1. All orders are FOB Sunnyvale, California, USA unless otherwise specified within the Quote. For deliveries outside USA, all Duties and Customs are the responsibility of the customer, unless otherwise agreed upon in writing.
2. Prices are quoted in US Dollars; Taxes and Shipping Charges are extra as applicable.
3. This quote is only valid for 30 days unless otherwise agreed upon in writing by our representatives.
4. Payment terms are mentioned at the top of this Quote.
5. Prices shown on this document are based on information provided by customer's Gerber files and associated instructional documents at date of quotation/order. To facilitate quick-turns, customers sometime request us to release orders with a pending PO. Any changes requested to PCB manufacture/assembly processes after placing order, or any new details that emerge in a pending PO, may result in additional charges.
6. The Turn Time shown is calculated using business days. Weekends and business holidays are excluded in any turn time calculations. Additional turn days may be added to orders that are placed "On Hold," waiting for customer response for resolution of missing information or discrepancies.

**PCB Fabrication Terms & Conditions:**

1. Sale subject to limited warranty. Warranty extends only to bare PCBs and does not apply after components are added by you or others. Our liability shall not exceed price paid by you for the ordered PCBs. No change or addition to these terms, or any additional or different terms on your purchase order, shall be binding on us unless executed in writing by one of our officers.
2. If Sierra Circuits is assembling the boards then we will also warranty the Assembly Labor workmanship.
3. If IPC Netlist is not provided in 356 format, Sierra Circuits will create a net-list from the incoming customer Gerber files to generate an electrical test program. In such cases, Sierra cannot guarantee, nor can it be liable for the electrical performance of the boards, since the test program itself is derived from the files submitted.
4. If you are ordering our "Web PCBs" product, the selection you made online, and the product you chose online, takes priority over your fab drawing or readme notes. Example: Say you chose material FR4 online and your fab drawing calls for Rogers material, we will simply process your order using FR4 material. The price quoted online is based on the specifications and product you chose online.
5. Manufacturing Optimizations: As with most other PCB manufacturers, we may make simple optimizations to your design to ensure boards are manufactured correctly. Such changes do not affect the electrical functionality of your design. These may include:
  - A) Teardrops may be added to pad/trace interfaces to ensure better connectivity.
  - B) Slivers less than .005" may be filled in to prevent resist slivers on the panels.
  - C) Soldermask dams that are less than .004" wide between SMD pads which have a .003" minimum clearance may be gang relieved.
  - D) Silkscreen may be clipped to ensure it does not get on top of pads/copper features.
  - E) Non-functional pads may be removed from inner layers.

**PCB Assembly and Components Terms & Conditions**

**QUOTE**

1. Quote is based on RFQ Data provided at the time of this quote and is subject to change if data has changed at the time of order. We do not perform a full DFM analysis nor do we identify all the issues at the time of quoting. For turnkey quotes, the availability of components varies every day; and we do not guarantee that all the components will be readily available at the time of order without any lead-time issues.
2. First Article (FA) requests at time of quote:
  - a) For Turn-Key or Consigned assembly quotes that require a First Article (FA), we will include a separate line item for the FA in the quote
  - b) For Turn-key orders, Sierra will only purchase components sufficient for the FA, unless customer agrees to pre-pay for components required for both FA and Production orders to save component costs.
3. FA requests after order has been placed:
  - a) For consigned and turn-key orders, Sierra will re-quote and show separate quotes for FA and Production.
  - b) Sierra will invoice customer for all FA as per quote, and invoice will include all bare boards made (including boards that are not used for the FA)
  - c) Sierra will invoice customer for all components purchased prior to FA request at the time bare boards are shipped.
4. For turnkey or consigned assembly orders that have a FA: At the time PCB's are shipped to assembly, customer will be invoiced in full for all bare boards(including boards that are remaining for the production order that is pending FA approval).
5. In all instances, should FA testing by the customer take longer than 20 days, Sierra will ship any components kept for remaining assemblies back to the customer and invoice accordingly. Customer may return the components at a later date to continue with the remaining assemblies under a new work order number.
6. Requests to split the original order into multiple builds will be priced as per quoting guidelines.
7. If, for any reason, an assembly order (be it consigned or turnkey) is put on hold after PCBs are made, and the hold is more than 20 days, Sierra Circuits reserves the right to invoice customer for all the PCBs fabricated and any components purchased for that order.

## PAYMENT

1. Payments for all invoices will be as per terms mentioned in Quotes and Invoices. Customer shall not withhold payment against invoices already raised for any reason whatsoever, like unsatisfactory workmanship, pending rework or non-functioning boards or for any other reason. (For mitigation of these reasons, see Warranty and Limited Liability Clauses below).
2. If the payment for the Order is being done using a credit card then, by providing us a credit card number, you are also authorizing us to charge the card as per our policies.
3. Cancelled Orders: In general, you are liable for the cost of parts that have been purchased or expenses that have been incurred prior to cancelling an order.

## ORDER

1. Assembly Order Acceptance is not guaranteed until your account is found in good standing.
2. Order Cancellation Charges.
  - a). Assembly Labor cancellation charges after order has been released: Cancellation charge will be determined by the percentage of labor performed before cancellation date, with a minimum of \$450.
  - b) Turn-Key Component cancellation charges after order has been released: Customer will pay 100% of components costs for components purchased by Sierra prior to cancellation date. This will include any shipping, kit-auditing and handling costs as applicable. All such components will be sent to Customer.
3. Component shortages:
  - a) Consigned parts shortage: If regardless of shortage, customer has asked us to proceed to the assembly phase and if customer does not send the parts within 2 days of starting the order, then we will complete all assemblies with whatever components were consigned to us, and all assemblies (including shortage assemblies) will be shipped and invoiced as per order, and the order would be deemed to be completed. Subsequently, if the customer ships the shortage assemblies with the shortage parts to us for rework, such rework assembly would be performed by Sierra either at no charge or at a suitable rework charge to be determined by Sierra.
  - b) Turnkey parts shortage: where it is known that some parts cannot be quickly procured due to unavailability or long lead times or other reasons, and customer specifically asks us to start the job nevertheless, such assemblies (including shortage assemblies) will be shipped and invoiced as per order, and the order would be deemed to be completed. When Sierra receives the ordered long lead-time components, customer may EITHER elect to ship those parts shipped to them (in which case no additional rework is involved); OR customer may send the shortage assemblies BACK to Sierra for completion rework (Rework & Re-Shipping charges will apply).
4. Completeness of Assembly data: It is customer's responsibility to provide complete and correct assembly data, BOM in excel spreadsheet, Assembly Gerbers, assembly drawings, Special instructions if any, and XY Pick and Place Data for SMT parts. If customer is unable to provide correct XY Data, additional charges will apply.
5. Turn Time: Assembly Turn Time will start when the kit is complete AND all assembly data related issues are resolved.
6. On-Time: Sierra may make partial shipments for your order. Your order will be considered shipped on-time if at least 90% of assemblies are shipped by the due date
7. Order Completeness: Orders may be considered complete, if the quantity shipped is within +/- 5% of the original quantity. Sierra will invoice customer for the boards shipped.

## WARRANTY

1. Assembly workmanship: All assembly workmanship will be as per IPC-A-610 unless otherwise directed in writing. All soldering will be using standard Tin/Lead solder in case of standard solder process assembly OR ROHS compliant solder in case of ROHS assembly and water soluble OA flux unless otherwise directed in writing.
2. ASSEMBLY WORKMANSHIP WARRANTY: We warrant each assembly for workmanship up to 30 days after shipment. In case of any unsatisfactory assembly workmanship, we will repair the assembly free of charge OR credit the quoted cost of the assembly labor at our sole discretion. Any modifications done to the assemblies by customer will nullify our warranties.
3. Sierra Circuits is not responsible for any damage or lack of functionality caused by defective design, components or PCBs provided by you or as a result of deficiencies in the electronic materials provided by you.
4. LIMITED LIABILITY-I: We are not liable for rework, repair or replacement for any faulty components supplied to us by customer or purchased by us from vendors in accordance with customer supplied BOMs.
5. LIMITED LIABILITY-II: We are neither responsible nor liable for assembled boards found non-functioning during testing by customer; we are only responsible for assembly workmanship performed as per customer supplied data.
6. LIMITED LIABILITY-III: In no case shall our liability exceed the price charged to you for the job performed by us. We are not liable for any assemblies beyond 30 days after shipment.
7. NO OTHER WARRANTY: We give no other warranty; either expressed or implied, and we specifically disclaim all other warranties, including warranties for merchantability and fitness.
8. No change or addition to these terms above, or any additional or different terms on your purchase order, shall be binding on us unless executed in writing by one of our officers.

**Please contact me if you have any questions about this quote.**

**Best Regards,**  
**Kimberly Lee Lerma**  
Account Manager  
Sierra Circuits, Inc.

Email: [kimberlyl@protoexpress.com](mailto:kimberlyl@protoexpress.com)  
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**End of Quote Q237181-5 from Sierra Circuits, Inc.**

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