

FORM OF SUBSCRIPTION AGREEMENT

Mattson Technology, Inc.
47131 Bayside Parkway
Fremont, California 94538

Gentlemen:

The undersigned (the “**Investor**”) hereby confirms its agreement with Mattson Technology, Inc., a Delaware corporation (the “**Company**”), as follows:

1. This Subscription Agreement, including the Terms and Conditions for Purchase of Units attached hereto as Annex I (collectively, this “**Agreement**”) is made as of the date set forth below between the Company and the Investor.

2. The Company has authorized the sale and issuance to certain investors of up to an aggregate of _____ units (the “**Units**”), subject to adjustment by the Company’s Board of Directors, with each Unit consisting of (i) one share (the “**Share**,” collectively, the “**Shares**”) of its common stock, par value \$0.001 per share (the “**Common Stock**”), and (ii) one warrant (the “**Warrant**,” collectively, the “**Warrants**”) to purchase _____ of a share of Common Stock (and the fractional amount being the “**Warrant Ratio**”), in substantially the form attached hereto as Exhibit B, for a purchase price of \$_____ per Unit (the “**Purchase Price**”). Units will not be issued or certificated. The Shares and Warrants are immediately separable and will be issued separately. The shares of Common Stock issuable upon exercise of the Warrants are referred to herein as the “**Warrant Shares**” and, together with the Shares, the Units and the Warrants, are referred to herein as the “**Securities**”).

3. The offering and sale of the Units (the “**Offering**”) are being made pursuant to (a) an effective Registration Statement on Form S-3, No. 333-_____ (the “**Registration Statement**”) filed by the Company with the Securities and Exchange Commission (the “**Commission**”), including the Prospectus contained therein (the “**Base Prospectus**”), (b) if applicable, certain “free writing prospectuses” (as that term is defined in Rule 405 under the Securities Act of 1933, as amended (the “**Act**”)), that have been or will be filed with the Commission and delivered to the Investor (or made available to the Investor by the filing by the Company of an electronic version thereof with the Commission) on or prior to the date hereof (the “**Issuer Free Writing Prospectus**”), containing certain supplemental information regarding the Units, the terms of the Offering and the Company and (c) a Prospectus Supplement (the “**Prospectus Supplement**” and, together with the Base Prospectus, the “**Prospectus**”) containing certain supplemental information regarding the Units and terms of the Offering that has been or will be filed with the Commission and delivered to the Investor (or made available to the Investor by the filing by the Company of an electronic version thereof with the Commission).

4. The Company and the Investor agree that the Investor will purchase from the Company and the Company will issue and sell to the Investor the Units set forth below for the aggregate purchase price set forth below. The Units shall be purchased pursuant to the Terms and Conditions for Purchase of Units attached hereto as Annex I and incorporated herein by this reference as if fully set

forth herein. The Investor acknowledges that the Offering is not being underwritten by the placement agent (the “**Placement Agent**”) named in the Prospectus Supplement and that there is no minimum offering amount.

5. The manner of settlement of the Shares included in the Units purchased by the Investor shall be as follows:

Delivery by crediting the account of the Investor's prime broker (as specified by such Investor on Exhibit A annexed hereto) with The Depository Trust Company (“**DTC**”) through its Deposit/Withdrawal At Custodian (“**DWAC**”) system, whereby Investor's prime broker shall initiate a DWAC transaction on the Closing Date using its DTC participant identification number, and released by Mellon Investor Services, the Company’s transfer agent (the “**Transfer Agent**”), at the Company's direction. **NO LATER THAN ONE (1) BUSINESS DAY AFTER THE EXECUTION OF THIS AGREEMENT BY THE INVESTOR AND THE COMPANY, THE INVESTOR SHALL:**

(I) DIRECT THE BROKER-DEALER AT WHICH THE ACCOUNT OR ACCOUNTS TO BE CREDITED WITH THE SHARES ARE MAINTAINED TO SET UP A DWAC INSTRUCTING THE TRANSFER AGENT TO CREDIT SUCH ACCOUNT OR ACCOUNTS WITH THE SHARES, AND

(II) REMIT BY WIRE TRANSFER THE AMOUNT OF FUNDS EQUAL TO THE AGGREGATE PURCHASE PRICE FOR THE UNITS BEING PURCHASED BY THE INVESTOR TO THE FOLLOWING ACCOUNT:

ABA # _____
Account Name: Mattson Technology, Inc.
Account Number: _____, Mattson Escrow Account
Attention: _____
Tel: _____

IT IS THE INVESTOR’S RESPONSIBILITY TO (A) MAKE THE NECESSARY WIRE TRANSFER IN A TIMELY MANNER AND (B) ARRANGE FOR SETTLEMENT BY WAY OF DWAC IN A TIMELY MANNER. IF THE INVESTOR DOES NOT DELIVER THE AGGREGATE PURCHASE PRICE FOR THE UNITS OR DOES NOT MAKE PROPER ARRANGEMENTS FOR SETTLEMENT IN A TIMELY MANNER, THE SHARES AND WARRANTS MAY NOT BE DELIVERED AT CLOSING TO THE INVESTOR OR THE INVESTOR MAY BE EXCLUDED FROM THE CLOSING ALTOGETHER.

6. The Investor represents that, except as set forth below, (a) it has had no position, office or other material relationship within the past three years with the Company or persons known to it to be affiliates of the Company, (b) it is not a member of the Financial Industry Regulatory Authority, Inc. (“**FINRA**”) or an Associated Person (as such term is defined under FINRA’s NASD Membership and Registration Rules Section 1011) as of the Closing, and (c) neither the Investor nor any group of Investors (as identified in a public filing made with the Commission) of which the Investor is a part in connection with the Offering of the Units, acquired, or obtained the right to acquire, 20% or more of

the Common Stock (or securities convertible into or exercisable for Common Stock) or the voting power of the Company on a post-transaction basis. Exceptions:

(If no exceptions, write "none." If left blank, response will be deemed to be "none.")

7. The executed Warrant shall be delivered in accordance with the terms thereof.

8. The Investor represents that it has received (or otherwise had made available to it by the filing by the Company of an electronic version thereof with the Commission) the Base Prospectus, declared effective by the Commission on _____, 2010, which is a part of the Company's Registration Statement, the documents incorporated by reference therein and any free writing prospectus (collectively, the "**Disclosure Package**"), prior to or in connection with the receipt of this Agreement. The Investor acknowledges that, prior to the delivery of this Agreement to the Company, the Investor will receive certain additional information regarding the Offering, including pricing information (the "**Offering Information**"). Such information may be provided to the Investor by any means permitted under the Act, including the Prospectus Supplement, a free writing prospectus and oral communications.

9. No offer by the Investor to buy Units will be accepted and no part of the Purchase Price will be delivered to the Company until the Investor has received (or made available to the Investor by the filing by the Company of an electronic version thereof with the Commission) the Offering Information and the Company has accepted such offer by countersigning a copy of this Agreement, and any such offer may be withdrawn or revoked, without obligation or commitment of any kind, at any time prior to the Company (or the Placement Agent on behalf of the Company) sending (orally, in writing or by electronic mail) notice of its acceptance of such offer. An indication of interest will involve no obligation or commitment of any kind until the Investor has received (or made available to the Investor by the filing by the Company of an electronic version thereof with the Commission) the Offering Information and this Agreement is accepted and countersigned by or on behalf of the Company.

10. The Company acknowledges that the only material, non-public information relating to the Company or its subsidiaries that the Company, its employees or agents has provided to the Investor in connection with the Offering prior to the date hereof is the existence of the Offering, and the Investor has agreed to maintain the confidentiality of this information until such information has been publicly disclosed. The Company understands and confirms that the Investors will rely on the foregoing representation in effecting transactions in securities of the Company. All of the disclosure furnished by or on behalf of the Company to the Investor regarding the Company, its business and the transactions contemplated hereby, including the Disclosure Package, is true and correct as of the date of such disclosure and did not or does not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading.

Number of Units: _____

Purchase Price Per Unit: \$ _____

Aggregate Purchase Price: \$ _____

Please confirm that the foregoing correctly sets forth the agreement between us by signing in the space provided below for that purpose.

Dated as of: _____, 2010

INVESTOR

By: _____

Print Name: _____

Title: _____

Address: _____

Agreed and Accepted
this ____ day of _____, 2010:

MATTSON TECHNOLOGY, INC.

By: _____

Title:

ANNEX I

TERMS AND CONDITIONS FOR PURCHASE OF UNITS

1. Authorization and Sale of the Units. Subject to the terms and conditions of this Agreement, the Company has authorized the sale of the Units.

2. Agreement to Sell and Purchase the Units; Placement Agent.

2.1 At the Closing (as defined in Section 3.1), the Company will sell to the Investor, and the Investor will purchase from the Company, upon the terms and conditions set forth herein, the number of Units set forth on the last page of the Agreement to which these Terms and Conditions for Purchase of Units are attached as Annex I (the “**Signature Page**”) for the aggregate purchase price therefor set forth on the Signature Page.

2.2 The Company proposes to enter into substantially this same form of Subscription Agreement with certain other investors (the “**Other Investors**”) and expects to complete sales of Units to them. The Investor and the Other Investors are hereinafter sometimes collectively referred to as the “**Investors**,” and this Agreement and the Subscription Agreements executed by the Other Investors are hereinafter sometimes collectively referred to as the “**Agreements**.”

2.3 Investor acknowledges that the Company has agreed to pay _____ (the “**Placement Agent**”) a fee (the “**Placement Fee**”) in respect of the sale of Units to the Investor.

2.4 The Company has entered into a Placement Agency Agreement, dated _____, 2010 (the “**Placement Agreement**”), with the Placement Agent that contains certain representations, warranties, covenants and agreements of the Company that may be relied upon by the Investor, which shall be a third party beneficiary thereof.

2.5 The Company covenants and agrees to use its reasonable best efforts to keep the Registration Statement effective until the earlier of (x) such time as all of the Shares and Warrant Shares issued or issuable can be sold by the Investor or its affiliates immediately without compliance with the registration requirements of the Act pursuant to Rule 144 under the Act and (y) the date all of the Shares and Warrant Shares issued or issuable shall have been sold by the Investor and its affiliates.

3. Closings and Delivery of the Shares and Funds.

3.1 Closing. The completion of the purchase and sale of the Units (the “**Closing**”) shall occur at a place and time (the “**Closing Date**”) to be specified by the Company and the Placement Agent, and of which the Investors will be notified in advance by the Placement Agent, in accordance with Rule 15c6-1 promulgated under the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”). At the Closing, (a) the Company shall cause the Transfer Agent to deliver to the Investor the number of Shares included in the Units set forth on the Signature Page registered in the name of the Investor or, if so indicated on the Investor Questionnaire attached hereto as Exhibit A, in the name of a nominee designated by the Investor, (b) the Company shall cause to be delivered to the Investor a Warrant to purchase a number of whole Warrant Shares determined by multiplying the number of Shares included in the Units set forth on the signature page by the Warrant Ratio and rounding down to the nearest whole number and (c) the aggregate purchase price for the Units being

purchased by the Investor will be delivered by the Escrow Agent on behalf of the Investor to the Company.

3.2 Conditions to the Obligations of the Parties.

(a) **Conditions to the Company's Obligations.** The Company's obligation to issue and sell the Units to the Investor shall be subject to: (i) the receipt by the Company of the purchase price for the Units being purchased hereunder as set forth on the Signature Page and (ii) the accuracy of the representations and warranties made by the Investor and the fulfillment of those undertakings of the Investor to be fulfilled prior to the Closing Date.

(b) **Conditions to the Investor's Obligations.** The Investor's obligation to purchase the Units will be subject to (or waiver by the Investor of) the accuracy of (a) the representations and warranties made by the Company and the fulfillment of those undertakings of the Company to be fulfilled prior to the Closing Date, including without limitation, those contained in the Placement Agreement, and (b) to the condition that the Placement Agent shall not have: (i) terminated the Placement Agreement pursuant to the terms thereof or (ii) determined that the conditions to the closing in the Placement Agreement have not been satisfied. The Investor's obligations are expressly not conditioned on the purchase by any or all of the Other Investors of the Units that they have agreed to purchase from the Company.

3.3 Delivery of Funds.

No later than one (1) business day after the execution of this Agreement by the Investor and the Company, the Investor shall remit by wire transfer the amount of funds equal to the aggregate purchase price for the Units being purchased by the Investor to the following account designated by the Company and the Placement Agent pursuant to the terms of that certain Escrow Agreement (the "**Escrow Agreement**") dated as of the date hereof, by and among the Company, the Placement Agent and _____ (the "**Escrow Agent**"):

ABA # _____

Account Name: Mattson Technology, Inc.

Account Number: _____, Mattson Escrow Account

Attention: _____

Tel: _____

Such funds shall be held in escrow until the Closing and delivered by the Escrow Agent on behalf of the Investors to the Company upon the satisfaction, in the sole judgment of the Placement Agent, of the conditions set forth in Section 3.2(b) hereof. The Placement Agent shall have no rights in or to any of the escrowed funds, unless the Placement Agent and the Escrow Agent are notified in writing by the Company in connection with the Closing that a portion of the escrowed funds shall be applied to the Placement Fee. The Company agrees to indemnify and hold the Escrow Agent harmless from and against any and all losses, costs, damages, expenses and claims (including, without limitation, court costs and reasonable attorneys fees) ("**Losses**") arising under this Section 3.3 or otherwise with respect to the funds held in escrow pursuant hereto or arising under the Escrow Agreement, unless it is finally, judicially determined that such Losses resulted directly from the willful

misconduct or gross negligence of the Escrow Agent. Anything in this Agreement to the contrary notwithstanding, in no event shall the Escrow Agent be liable for any special, indirect or consequential loss or damage of any kind whatsoever (including but not limited to lost profits), even if the Escrow Agent has been advised of the likelihood of such loss or damage and regardless of the form of action.

3.4 Delivery of Shares.

No later than one (1) business day after the execution of this Agreement by the Investor and the Company, the Investor shall direct the broker-dealer at which the account or accounts to be credited with the Shares being purchased by such Investor are maintained, which broker/dealer shall be a DTC participant, to set up a DWAC instructing Mellon Investors Services, the Company's Transfer Agent, to credit such account or accounts with the Shares. Such DWAC instruction shall indicate the settlement date for the deposit of the Shares, which date shall be provided to the Investor by the Placement Agent. Simultaneously with the delivery to the Company by the Escrow Agent of the funds held in escrow pursuant to Section 3.3 above, the Company shall direct the Transfer Agent to credit the Investor's account or accounts with the Shares pursuant to the information contained in the DWAC.

4. Representations, Warranties and Covenants of the Investor.

The Investor acknowledges, represents and warrants to, and agrees with, the Company and the Placement Agent that:

4.1 The Investor (a) is knowledgeable, sophisticated and experienced in making, and is qualified to make decisions with respect to, investments in securities presenting an investment decision like that involved in the purchase of the Units, including investments in securities issued by the Company and investments in comparable companies, (b) has answered all questions on the Signature Page and the Investor Questionnaire and the answers thereto are true and correct as of the date hereof and will be true and correct as of the Closing Date and (c) in connection with its decision to purchase the number of Units set forth on the Signature Page, has received and is relying only upon the Disclosure Package and the documents incorporated by reference therein and the Offering Information.

4.2 (a) The Investor understands and acknowledges that no action has been or will be taken in any jurisdiction outside the United States by the Company or the Placement Agent that would permit an offering of the Securities, or possession or distribution of offering materials in connection with the issue of the Securities in any jurisdiction outside the United States where action for that purpose is required, (b) if the Investor is outside the United States, it will comply with all applicable laws and regulations in each foreign jurisdiction in which it purchases, offers, sells or delivers Securities or has in its possession or distributes any offering material, in all cases at its own expense and (c) the Placement Agent is not authorized to make and has not made any representation, disclosure or use of any information in connection with the issue, placement, purchase and sale of the Units, except as set forth or incorporated by reference in the Base Prospectus or the Prospectus Supplement or any Issuer Free Writing Prospectus.

4.3 (a) The Investor has full right, power, authority and capacity to enter into this Agreement and to consummate the transactions contemplated hereby and has taken all necessary action to authorize the execution, delivery and performance of this Agreement, and (b) this Agreement constitutes a valid and binding obligation of the Investor enforceable against the Investor in accordance

with its terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and except as to the enforceability of any rights to indemnification or contribution that may be violative of the public policy underlying any law, rule or regulation (including any federal or state securities law, rule or regulation).

4.4 The Investor understands that nothing in this Agreement, the Prospectus, the Disclosure Package, the Offering Information or any other materials presented to the Investor in connection with the purchase and sale of the Units constitutes legal, tax or investment advice. The Investor has consulted such legal, tax and investment advisors and made such investigation as it, in its sole discretion, has deemed necessary or appropriate in connection with its purchase of Units. The Investor also understands that there is no established public trading market for the Warrants being offered in the Offering, and that the Company does not expect such a market to develop. In addition, the Company does not intend to apply for listing the Warrants on any securities exchange. Without an active market, the liquidity of the Warrants will be limited.

4.5 Since the date on which the Placement Agent first contacted the Investor about the Offering, the Investor has not disclosed any information regarding the Offering to any third parties (other than its legal, accounting and other advisors that are subject to an obligation of confidentiality) and has not engaged in any transactions involving the securities of the Company (including, without limitation, any Short Sales involving the Company's securities). The Investor covenants that it will not engage in any transactions involving the securities of the Company (including Short Sales) or disclose any information about the Offering (other than to its legal, accounting and other advisors that are subject to an obligation of confidentiality) prior to the time that the transactions contemplated by this Agreement are publicly disclosed. The Investor agrees that it will not use any of the Securities acquired pursuant to this Agreement to cover any short position in the Common Stock if doing so would be in violation of applicable securities laws. For purposes hereof, "**Short Sales**" include, without limitation, all "short sales" as defined in Rule 200 promulgated under Regulation SHO under the Exchange Act, (but shall not be deemed to include the location and/or reservation borrowable shares of Common Stock).

4.6 The Investor is acquiring the Securities for its own account, not as a nominee or agent; provided, however, that by making the representations herein, the Investor does not agree to hold any of the Securities for any minimum or other specific term and reserves the right to resell or otherwise dispose of the Securities at any time, subject to compliance with applicable federal or state securities laws, rules or regulations. The Investor is acquiring the Securities hereunder in the ordinary course of its business and does not presently have any agreement or understanding, directly or indirectly, with any third party to acquire, sell, transfer, or distribute any of the Securities.

5. Survival of Representations, Warranties and Agreements; Third Party Beneficiary. Notwithstanding any investigation made by any party to this Agreement or by the Placement Agent, all covenants, agreements, representations and warranties made by the Company and the Investor herein will survive the execution of this Agreement, the delivery to the Investor of the Shares and Warrants being purchased and the payment therefor. The Placement Agent shall be a third party beneficiary with respect to the representations, warranties and agreements of the Investor in Section 4 hereof.

6. Notices. All notices, requests, consents and other communications hereunder will be in writing, will be mailed (a) if within the domestic United States by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, or by facsimile or (b) if delivered from outside the United States, by International Federal Express or facsimile, and (c) will be deemed given (i) if delivered by first-class registered or certified mail domestic, three business days after so mailed, (ii) if delivered by nationally recognized overnight carrier, one business day after so mailed, (iii) if delivered by International Federal Express, two business days after so mailed and (iv) if delivered by facsimile, upon electronic confirmation of receipt and will be delivered and addressed as follows:

(a) if to the Company, to:

Mattson Technology, Inc.
47131 Bayside Parkway
Fremont, California 94538
Attention: President and Chief Executive Officer
Facsimile: (510) 492-5911

with copies to:

Wilson Sonsini Goodrich & Rosati
Professional Corporation
650 Page Mill Road
Palo Alto, CA 94304
Attention: Tony Jeffries, Esq.
Facsimile: (650) 493-6811

(b) if to the Investor, at its address on the Signature Page hereto, or at such other address or addresses as may have been furnished to the Company in writing.

7. Changes. This Agreement may not be modified or amended except pursuant to an instrument in writing signed by the Company and the Investor.

8. Headings. The headings of the various sections of this Agreement have been inserted for convenience of reference only and will not be deemed to be part of this Agreement.

9. Severability. In case any provision contained in this Agreement should be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein will not in any way be affected or impaired thereby.

10. Governing Law. This Agreement will be governed by, and construed in accordance with, the laws of the State of New York.

11. Counterparts. This Agreement may be executed in two or more counterparts, each of which will constitute an original, but all of which, when taken together, will constitute but one instrument, and will become effective when one or more counterparts have been signed by each party hereto and delivered to the other parties. The Company and the Investor acknowledge and agree that the Company shall deliver its counterpart to the Investor along with the

Prospectus Supplement (or the filing by the Company of an electronic version thereof with the Commission).

12. Confirmation of Sale. The Investor acknowledges and agrees that such Investor's receipt of the Company's signed counterpart to this Agreement, together with the Prospectus Supplement (or the filing by the Company of an electronic version thereof with the Commission), shall constitute written confirmation of the Company's sale of Units to such Investor.

13. Termination. In the event that the Placement Agreement is terminated by the Placement Agent pursuant to the terms thereof, this Agreement shall terminate without any further action on the part of the parties hereto.

EXHIBIT A

MATTSON TECHNOLOGY, INC.

INVESTOR QUESTIONNAIRE

Pursuant to Section 3 of Annex I to the Agreement, please provide us with the following information:

1. The exact name that your Shares and Warrants are to be registered in. You may use a nominee name if appropriate: _____
2. The relationship between the Investor and the registered holder listed in response to item 1 above: _____
3. The mailing address of the registered holder listed in response to item 1 above: _____
4. The Social Security Number or Tax Identification Number of the registered holder listed in the response to item 1 above: _____
5. Name of DTC Participant (broker-dealer at which the account or accounts to be credited with the Shares are maintained): _____
6. DTC Participant Number: _____
7. Name of Account at DTC Participant being credited with the Shares: _____
8. Account Number at DTC Participant being credited with the Shares: _____