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Date: July 30, 2002
From: Jim McElroy
Subject: Perfect Bill of Materials Web Forum Minutes

The web forum had 101 participants from the following organizations:

Agile	Lucent Technologies
Celestica	Motorola
Delphi Delco	NCMS
HP	NIST
IBM	Nortel Networks
Intel	Plexus
Introit Systems	PTC
IPC	Solectron
Jabil	SpinCircuit

The following list provides titles of slides used in presentation. Materials were presented by Ken Chow of Celestica and Jim McElroy of NEMI. Note that this material has been posted on the NEMI web site: www.nemi.org

Slide Flips

10:52:20 AM	In Search of the Perfect Bill of Materials
11:03:23 AM	Topics to be Covered
11:04:49 AM	NEMI Mission
11:05:27 AM	What Does NEMI Do?
11:06:25 AM	Perfect BoM Industry Collaboration
11:06:32 AM	History-how did it start?
11:10:11 AM	The Team and Process
11:10:30 AM	Issues
11:10:57 AM	Design to Mfg Data Flow
11:12:51 AM	Data issues delay TTM & TTV
11:14:42 AM	What makes it worse
11:16:47 AM	Defect observations
11:22:45 AM	Defect Data Sample
11:24:04 AM	Solutions
11:24:16 AM	Improve, detect, and integrate
11:25:55 AM	Design Community Specifics
11:29:05 AM	Design Community Specifics II
11:31:16 AM	Perfect BoM Plan
11:32:50 AM	Next Steps
11:33:05 AM	Team recommendations for NEMI
11:34:44 AM	Feedback/Closure

Participant Questions with Responses

- 11:08:30 AM How do we find out about NEMI's web shops in the future? I only found out about this one by accident.
First run of this forum was intentionally advertised on a limited basis to insure that we had good results on a small scale. Future events will have broader exposure.
- 11:12:57 AM What does EDA stand for?
Electronic Design Automation
- 11:13:28 AM Is there a way to keep the presentation file by the participant?
Material has been posted to NEMI web site (www.nemi.org) as PDF file. For those who need PPT file, please send request to cwilliams@mindspring.com.
- 11:14:00 AM Is the error rate on the BOM level or line level in the bom?
For a 100 item BoM, an 80% error rate means that there are issues with 80 of the line items.
- 11:14:46 AM Can I get a softcopy of this presentation?
See response above.
- 11:16:42 AM Please define SMS & provide a couple examples of SMS companies.
Semiconductor Manufacturing Services company. Examples would include ChipPAC and Amkor.
- 11:16:46 AM How to save the presentation file. Please advise.
See response above.
- 11:17:03 AM SUGGESTION: It would be helpful if the acronyms were defined. I am not familiar with several that were used.
File posted to NEMI site has acronyms spelled out.
- 11:17:31 AM Is this presentation available in a downloadable format so we can share it internally in our companies with others not on this call?
See above response.
- 11:26:19 AM Is this process expected to apply to a specific Nortel Leadership Category NPI?
According to Steve Christensen, this effort is being supported by Nortel and will likely apply to a specific Nortel NPI category.
- 11:26:43 AM Will the slide package be distributed via email?
See above response. File has been posted to NEMI web site.
- 11:28:58 AM If we all use supplier and supplier part number on our BOMs don't all the key EMS players have ERP systems that can scrub this data against their own database and perform cross referencing?
Since additional data is available to OEM we believe it should be provided as part of BoM to help insure consistent interpretation of data across the supply chain.
- 11:30:24 AM Real time update ... Are you talking about updates to the schematic design tool?
Design databases are often out of synch with BoM. Any changes should be reflected in design database as a precursor to updating the BoM to help insure consistency.
- 11:31:30 AM Can you comment on BoM revision controls. Is this an attribute of the perfect BoM?
Revision should be captured as part of BoM attributes.
- 11:32:03 AM What is EMS?
Electronic Manufacturing Services (e.g. Celestica, Jabil, Plexus, Solectron).
- 11:32:14 AM Where could I get a copy of the white paper?
This is also posted on NEMI web site.
- 11:34:55 AM Do you have any examples of soft copy formats for BoM's that work well in that headings etc. are very self-explanatory.
Sample is included as part of white paper.

11:35:15 AM Can you also comment on BoM change management in the pre-production stages. What is the EMS vendor's preferences? Difference lists? BoM overwrites?
NEMI effort did not focus on pre-production stages. Main point is that process should be consistent.

11:36:58 AM What is the adoption of PDX among OEM, EMS and tool vendors? Early indicators are quite positive. NEMI is considering effort to capture specific metrics so we can measure industry adoption success.

11:37:16 AM What is PDX and how does it relate to GENCAM and ODB++
PDX standards focus on broad exchange of information from design to mfg. GenCAM and ODB++ deal more with the physical descriptions of board fabrication and assembly information. Both standards are included in the IPC standards matrix.

11:37:35 AM How are designers to produce preliminary BOMS, usually produced by CAD tools?
NEMI effort did not focus on preliminary BoMs.

11:39:15 AM Is there an industry standard differentiation between AML and AVL? Both are accepted. Main point is to be consistent across a given company.

11:39:41 AM How do we participate in the pilot programs?
We will inform the industry of any pilot activity and provide a mechanism for sign up by solution providers and users.

11:39:50 AM Who did the presentation? Please provide name and phone number. Contact information has been included in web posting. We would also like to thank Vinay Asgekar of AMR Research for his help in preparing presentation.

11:39:57 AM Which PDX standard are we focusing on?
IPC 2578 is the standard that deals with BoM specifics.

11:40:29 AM We are designing solutions now. What would be the appropriate approach to disseminate our tools and services?
NEMI does not endorse any particular solution. Rather we focus on creation and adoption of industry standards. Best proactive approach would be participation in pilots.

11:41:16 AM Have you made progress you can share on standardization of BOM structure? Are you covering Configurable BOMS?
See PDX standards. We have not addressed configurable BoMs.

11:42:15 AM 1. What is the PDX adoption rates among EMS, OEM and tool vendors? 2. Is the PDX standard going to be subsumed by some other standard - for example RosettaNet. 3. Are all the EMS providers standardizing on PDX?
See above response on adoption rates. IPC 25XX PDX standards have been integrated into RosettaNet Clusters 2 and 7. We expect leading EMS providers to adopt PDX in concert with their large OEM customers.

11:42:34 AM Can you comment on Part Change Notification (PCN) as the means to keep the OEM, EMS, and the Manufacturer MPN's data accurate. Manufacturers typically notify both the OEM and EMS. The EMS in turn will notify the OEM for the affected products. Changes are formally implemented in the EMS' DBs when the OEM issues a change notification with the PCN. EMS typically wait for official notification from the OEM prior to updating their DB in order to keep the two systems in sync.

11:42:47 AM is there a need to influence design and NPI engineers through OEM business rules and more important, EMS preference, mfg constraints etc....
Definitely there are needs to be filled in the distributed design and mfg. environment. A portion of this is handled through dissemination of DFx guidelines. More work is needed to make this type of information accessible and current.

- 11:43:04 AM Are any activities being planned to raise awareness of the BOM related issues at the "C" level within companies? (I regard this as a major contributing factor).
The NEMI Team will consider this request as part of planning of future work.
- 11:43:50 AM Can you talk a little about the PDX format? Is this a "widely accepted" format in the industry?
See above responses. These are relatively new standards but we are seeing fairly rapid adoption by a number of leading companies.
- 11:45:58 AM What are the data elements that NEMI considers to be in a "Perfect BOM"?
See white paper.
- 11:46:27 AM Based on the conversation on cleaning the BOM from OEM to CM, you are assuming that the OEM are providing you with MPNs that CM can find. Are you expecting this from the ERP / PDM or from the source ...DESIGN ???
We believe that the design data base should be the controlling source that feeds all other documents including the Bill of Materials.
- 11:46:55 AM We have multiple MPNs for a single internal part number used to indicate it is not soul sourced. We plan on continuing with this practice - What are the major issues with this for Contract Manufacturers?
There has been some discussion among NEMI members to make use of so called umbrella part numbers as a mechanism to handle multiple sources of parts that have the same form, fit, and function. There are issues with either approach but the trend seems to be moving away from multiple MPNs for a single internal part number.
- 11:49:03 AM In the white paper, page 10, there is reference that some items need to be removed from BOM. One of those items is Specifications. Are you saying that the part specification (supplier PDF) is not a good item to help clarify the part?
Specification can be in the BOM as long as it appears in the same line item as the part. Specs should not show up as a separate line item. Each line item should reference a real part that needs to be placed on the product.
- 11:50:15 AM Manufacturer P/N's distinguish packaging options such as Tape & Reel vs. Ammo Pack, vs. Bulk. When specifying a Manufacturer Part Number, do you prefer this packaging type to be specified as well?
EMS providers like the flexibility to add this info. since some of these items (e.g. packaging) may vary depending on actual mfg. location.
- 11:54:00 AM What is the percentage of Part numbers being incorrect due to the "delivery type" not being supplied.... ie: tape&reel, trays etc?
See above response.
- 11:57:53 AM Could you repeat that PDX website?
For details of the PDX standards, go to the following URL:
<http://webstds.ipc.org/>

The NEMI team plans to review the feedback from this forum as well as other inputs as it considers future plans for this work. Examples of future efforts could include working with solution providers to address specific issues, doing pilot programs to demonstrate results, additional web forums to educate industry, etc. For those who have a passion for this area, we are open to getting additional participants to the work. Thank you all for your participation in this web event.