The Hermes Standard
for "M-to-M" in SMT Assembly

The Hermes Standard Change Proposal

Adding~~ed some~~ clarification regarding the handling of clearance height and weight attributes in BoardAvailable message

Voting meeting:
28th of January 2019 (APEX / San Diego)

Requesting company:
NUTEK

Version change:

Revision

Affected versions:

1.0.2 and 1.1

Service description tag:

-

Description:

This change is intended to add ~~Added~~ some clarification regarding the handling of clearance height and weight attributes in BoardAvailable message.

Proposed changes to the standard: When attributes like TopClearanceHeight, BottomClearanceHeight or Weight are received from an upstream machine and if the product is significantly altered by the clearance height or weight then the affected attributes in the Hermes message need to be either adjusted accordingly or omitted before transmission of data to downstream.

Use cases:

-

Functionality / communication sequences:

-

New / changed XML messages:

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Proposed changes to standard:

3   Message definition

…

3.6 BoardAvailable

The BoardAvailable message is sent to the downstream machine to indicate the readiness of the upstream machine to handover a PCB. When an optional attribute is received from an upstream machine, then it must be passed on to the next downstream machine. When attributes like TopClearanceHeight, BottomClearanceHeight or Weight are received from an upstream machine and if the product is significantly altered by the clearance height or weight then the affected attributes need to be either adjusted accordingly or omitted before transmitted downstream. If a machine in the process line can affect any of the product parameters that are present in the BoardAvailable message, then the machine should alter the attribute if that machine has the correct value else the attributes should be omitted. It is recommend to update the attributes as the product is altered by the machine and the information may be used in downstream machines. An attribute which has not been received by an upstream machines shall only be set if the machine is confident about its true value.

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BoardAvailable	Type	Range	Optional	Description
◆BoardId	string	GUID (36 bytes)	no	Indicating the ID of the available board
◆BoardIdCreatedBy	string	non-empty string (minimum supported length: 80 bytes)	no	MachineId of the machine which created the BoardId (the first machine in a consecutive row of machines implementing this protocol). The MachineId is part of the Hermes configuration.
◆FailedBoard	int	0 .. 2	no	A value of the list below
◆ProductTypeId	string	any string (minimum supported length: 254 bytes)	yes	Identifies a collection of PCBs sharing common properties
◆FlippedBoard	int	0 .. 2	no	A value of the list below
◆TopBarcode	string	any string (minimum supported length: 254 bytes)	yes	The barcode of the top side of the PCB
◆BottomBarcode	string	any string (minimum supported length: 254 bytes)	yes	The barcode of the bottom side of the PCB
◆Length	float	positive numbers	yes	The length of the PCB in millimeter.
◆Width	float	positive numbers	yes	The width of the PCB in millimeter.
◆Thickness	float	positive numbers	yes	The thickness of the PCB in millimeter.
◆ConveyorSpeed	float	positive numbers	yes	The conveyor speed preferred by the upstream machine in millimeter per second
◆TopClearanceHeight	float	positive numbers	yes	The clearance height for the top side of the PCB in millimeter.
◆BottomClearanceHeight	float	positive numbers	yes	The clearance height for the bottom side of the PCB in millimeter.
◆Weight	float	positive numbers	yes	The weight of the PCB in grams.

GUID must match the regular expression

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[0-9a-f]{8}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{12}
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FailedBoard may be one of the following values:

- 0   Board of unknown quality available
- 1   Good board available
- 2   Failed board available

FlippedBoard may be one of the following values:

- 0   Side up is unknown
- 1   Board top side is up
- 2   Board bottom side is up

If FlippedBoard is 2 (board bottom side is up) then TopBarcode is facing downwards and BottomBarcode is facing upwards. Same applies for TopClearanceHeight and BottomClearanceHeight.

The definition of board bottom and board top side is outside of the scope of The Hermes Standard and left to the customer.
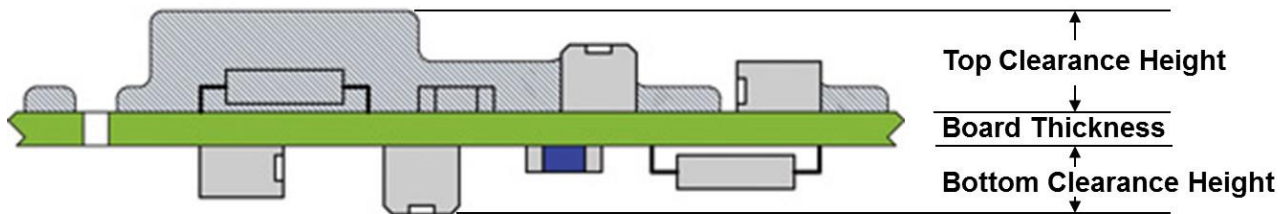
Fig. 20 Explanation for top and bottom clearance height

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