# Message Definition

## BoardArrived

The BoardArrived message is sent via Hermes-Vertical to a Supervisory System to indicate that a PCB has arrived at this machine.

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| --- | --- | --- | --- | --- |
| **BoardArrived** | **Type** | **Range** | **Optional** | **Description** |
| nodeMachineId | string | any string  (minimum supported length: 80 bytes) | no | ID / name of this machine for identifying it in a Hermes enabled production line. |
| nodeUpstreamLaneId | int | 1 .. n | no | The lane on the upstream side  Lanes are enumerated looking downstream from right to left beginning with 1 |
| nodeUpstreamInterfaceId | string | any string  (minimum supported length: 80 bytes) | yes | The ID of the transportation interface on the upstream side |
| nodeMagazineId | string | any string  (minimum supported length: 80 bytes) | yes | Barcode of a magazine, required to identify the magazine to which the Board was transferred. |
| nodeSlotId | int | 1 .. n | yes | Indicates the slot in the magazine, enumerated from bottom to top, beginning with 1. |
| nodeBoardTransfer | int | 1 .. 3 | no | A value of the list below |
| nodeBoardId | string | GUID  (36 bytes) | no | Indicating the ID of the available board |
| nodeBoardIdCreatedBy | 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. |
| nodeFailedBoard | int | 0 .. 2 | no | A value of the list below |
| nodeProductTypeId | string | any string  (minimum supported length: 254 bytes) | yes | Identifies a collection of PCBs sharing common properties |
| nodeFlippedBoard | int | 0 .. 2 | no | A value of the list below |
| nodeTopBarcode | string | any string  (minimum supported length: 254 bytes) | yes | The barcode of the top side of the PCB |
| nodeBottomBarcode | string | any string  (minimum supported length: 254 bytes) | yes | The barcode of the bottom side of the PCB |
| nodeLength | float | positive numbers | yes | The length of the PCB in millimeter. |
| nodeWidth | float | positive numbers | yes | The width of the PCB in millimeter. |
| nodeThickness | float | positive numbers | yes | The thickness of the PCB in millimeter. |
| nodeConveyorSpeed | float | positive numbers | yes | The conveyor speed used for the PCB transfer in millimeter per second |
| nodeTopClearanceHeight | float | positive numbers | yes | The clearance height for the top side of the PCB in millimeter. |
| nodeBottomClearanceHeight | float | positive numbers | yes | The clearance height for the bottom side of the PCB in millimeter. |
| nodeWeight | float | positive numbers | yes | The weight of the PCB in grams. |
| nodeWorkOrderId | string | any string  (minimum supported length: 80 bytes) | yes | Identifies the work order for production of the PCB |

GUID must match the regular expression

[0-9a-f]{8}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{12}

FailedBoard may be one of the following values:

1. Board of unknown quality available
2. Good board available
3. Failed board available

FlippedBoard may be one of the following values:

1. Side up is unknown
2. Board top side is up
3. Board bottom side is up

BoardTransfer may be one of the following values:

1. Transferred – Board arrived from upstream machine via Hermes or SMEMA
2. Loaded – Board was loaded from a magazine or a stack of Boards
3. Inserted – Board was manually inserted into the machine

## BoardDeparted

The BoardDeparted message is sent via Hermes-Vertical to a Supervisory System to indicate that a PCB has left this machine.

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| --- | --- | --- | --- | --- |
| **BoardDeparted** | **Type** | **Range** | **Optional** | **Description** |
| nodeMachineId | string | any string  (minimum supported length: 80 bytes) | no | ID / name of this machine for identifying it in a Hermes enabled production line. |
| nodeDownstreamLaneId | int | 1 .. n | no | The lane on the downstream side  Lanes are enumerated looking downstream from right to left beginning with 1 |
| nodeDownstreamInterfaceId | string | any string  (minimum supported length: 80 bytes) | yes | The ID of the transportation interface on the downstream side |
| nodeMagazineId | string | any string  (minimum supported length: 80 bytes) | yes | Barcode of a magazine, required to identify the magazine to which the Board was transferred. |
| nodeSlotId | int | 1 .. n | yes | Indicates the slot in the magazine, enumerated from bottom to top, beginning with 1. |
| nodeBoardTransfer | int | 1 .. 3 | no | A value of the list below |
| nodeBoardId | string | GUID  (36 bytes) | no | Indicating the ID of the available board |
| nodeBoardIdCreatedBy | 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. |
| nodeFailedBoard | int | 0 .. 2 | no | A value of the list below |
| nodeProductTypeId | string | any string  (minimum supported length: 254 bytes) | yes | Identifies a collection of PCBs sharing common properties |
| nodeFlippedBoard | int | 0 .. 2 | no | A value of the list below |
| nodeTopBarcode | string | any string  (minimum supported length: 254 bytes) | yes | The barcode of the top side of the PCB |
| nodeBottomBarcode | string | any string  (minimum supported length: 254 bytes) | yes | The barcode of the bottom side of the PCB |
| nodeLength | float | positive numbers | yes | The length of the PCB in millimeter. |
| nodeWidth | float | positive numbers | yes | The width of the PCB in millimeter. |
| nodeThickness | float | positive numbers | yes | The thickness of the PCB in millimeter. |
| nodeConveyorSpeed | float | positive numbers | yes | The conveyor speed used for the PCB transfer in millimeter per second |
| nodeTopClearanceHeight | float | positive numbers | yes | The clearance height for the top side of the PCB in millimeter. |
| nodeBottomClearanceHeight | float | positive numbers | yes | The clearance height for the bottom side of the PCB in millimeter. |
| nodeWeight | float | positive numbers | yes | The weight of the PCB in grams. |
| nodeWorkOrderId | string | any string  (minimum supported length: 80 bytes) | yes | Identifies the work order for production of the PCB |

GUID must match the regular expression

[0-9a-f]{8}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{4}-[0-9a-f]{12}

FailedBoard may be one of the following values:

1. Board of unknown quality available
2. Good board available
3. Failed board available

FlippedBoard may be one of the following values:

1. Side up is unknown
2. Board top side is up
3. Board bottom side is up

BoardTransfer may be one of the following values:

1. Transferred – Board moved to downstream machine via Hermes or SMEMA
2. Unloaded – Board was unloaded into a magazine
3. Removed – Board was manually taken out of the machine