

aPriori Electronics Costing

2020-03 Release Notes

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These release notes cover the most recent changes to the aPriori Printed Circuit Board Assembly (PCBA) and Wire Harness (WH) costing solutions:

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Documentation

The latest version of the documentation for these products can always be found at the aPriori Support HelpCenter (requires registration): <https://support.apriori.com/hc>

aPriori Cross-Product Compatibility

aPriori Electronics Costing 2020-03 is compatible with:

- aPriori Professional 2019 R1 SP1 F2 (19.1.1.2) and later
- PCBA and Wire Harness VPES and Regional Data Libraries (RDLs) (version 19.3.1.2, March 2019) and later

What's new in aPriori Electronics Costing 2020-03

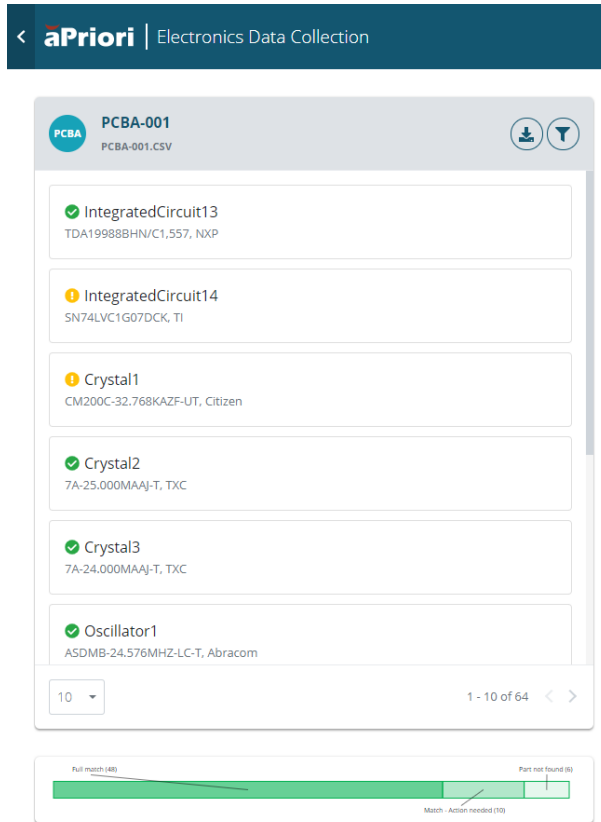
Overview of changes

The changes in this release allow you to cost a higher percentage of a PCBA BOM with less manual effort by filling gaps in data collected from Electronics Data Collection interface with default values stored in the VPE.

Electronics Data Collection

There are two major updates for the Electronics Data Collection interface (EDC):

- **User experience** – The status bar for a BOM now represents three statuses, giving the user insight into the actual part match rate with the SiliconExpert database. Previously, the status bar in EDC only showed the status of parts that had a match in SiliconExpert and had complete data required for costing. Now the status bar shows parts that have:
 - A match and complete data
 - A match and partial data or multiple matches
 - No matches



NOTE: 2020-03 Electronics Data Collection interface improvements require upgrades to:

- PCBA and Wire Harness cost models
- PCBA and Wire Harness costing macros
- User Defined Attributes (UDAs)

For more information, please contact your aPriori account team.

- **Export behavior** – The BOM export from EDC now includes data for parts that have a match but do not have all of the data required for costing. Previously, only parts that had a match and all required data had data exported into the BOM file. This change increases the amount of data being exported but does not change the output data format. The BOM file Parts that have incomplete data are included in the BOM file with the **Incomplete** status.

NOTE: No upgrades, preference, or system changes are required for this enhancement.

PCBA Cost Model

Major Changes

To take advantage of additional data that is exported from EDC, some changes have been implemented in the PCBA cost model.

For parts that have partial data exported, the PCBA cost model can now apply default values for the missing data fields based on the classification data for a component. The Component Classification Defaults table is the source of the default values that are applied. The default values are used only when:

- A value is not available in the BOM file for that field
- A value is not available in the component library for that field
- The user specifies that VPE defaults should be considered
- The component has a classification that is included in the lookup table *componentClassificationDefaults*

To identify the source of specific values in a costed PCBA, users can navigate to the custom outputs for a given part. For example, the figure shows that **Pin Count** was taken from the **BOM** file, the **Mount Type** was taken from the **Component Library**, and the **Unit Cost (USD)** was taken from **VPE defaults** and that the VPE default preference was for the **lowest cost**.

Physical Information	Prefer BOM
Pin Count Information	from BOM
Pin Count	2
Mount Type Information	from Component Library
Mount Type	Surface Mount
Cost and Source Information	from VPE defaults - Prefer lowest cost
Source	Not Available
Lifecycle Status	Not Available
Manufacturer	Not Available
Manufacturer Part Number	Not Available
Supplier	Not Available
Supplier Part Number	Not Available
Unit Cost (USD)	0.0500
Unit Type	Each
Purchase Variance (%)	60.00

To take advantage of the additional data exported from EDC, each of these changes must be implemented in the customer environment:

- Define a new User Defined Attribute (UDA) named **PCBA – Component Classification**. This UDA stores the component classification that is extracted from SiliconExpert.

- Update the *PCBA* BOM Loader mapping to map the **Classification** column from an EDC export to the **PCBA – Component Classification** UDA.
- Update the *PCBA* costing macro to include two new input fields that enable the user to specify whether they want to use default values from the **componentClassificationDefaults** lookup table for physical data and cost data independently.
- Update the cost model to pull values from the **componentClassificationDefaults** table on a field by field basis.

The lookup table that drives the default values for components, **componentClassificationDefaults**, has been populated with default values for 53 different classification. To determine which default values to use:

- 1 aPriori iterates through the lookup table in the order of the field Search Index in the lookup table
- 2 aPriori evaluates the value of the UDA **PCBA – Component Classification** to see if the string includes the value from the **Component Classification Includes** field in the lookup table. If:
 - There is a match, the values from that row are used as needed.
 - There is not a match, the next **Search Index** is considered until there is a match.
 - There are no matches in the table, the field does not get a value and the component fails. This is the default behavior.

It is also possible to use default values for any parts that do not have a match in the component classification table by modifying the lookup table. However, because this technique is not driven by any underlying intelligence, and very broad assumption is assumed.

To automatically fill in missing data when there are nor matches in the table:

- Add a row to the lookup table **componentClassificationDefaults** with the values.
- Enter **DefaultValue** in the **Component Classification Includes** column.
- Enter a value greater than all other search index values in the **Search Index** column.
- Enter the default values you would like to apply to unmatched parts in the **Pin Count, Mount Type, and Unit Cost** columns.

Minor Changes

Several minor changes have also been made to improve the PCBA cost model:

- To improve the transparency of cost calculations, the purchase variance applied to the unit cost is now exposed as a custom output. Purchase variance is used to account for discounts your company may receive on components based on factors such as buying power or negotiating leverage.
- The custom output for pin count has been fixed so that it represents the pin count of a single component. Previously this value was shown as the pin count of the part multiplied by the quantity of that part in the assembly, which was misleading.
- Unit type no longer needs to be populated for components. if no unit type is provided then a unit type of **Each** is assumed

Component Classification Defaults table

Search Index	Component Classification Includes	Pin Count	Mount Type	Unit Cost	Unit Type
1	Resistor Fixed Single-Surface Mount	2	Surface Mount	0.05	Each
2	Resistor Fixed Single-Through Hole	2	Through Hole	0.25	Each
3	Resistor	2	Surface Mount	0.05	Each
4	Variable Capacitors	2	Surface Mount	2.50	Each
5	Capacitor Networks and Arrays	8	Surface Mount	0.05	Each
6	Capacitor	2	Surface Mount	0.10	Each
7	Connector	6	Through Hole	5.00	Each
8	Specialized Programmable Logic	20	Surface Mount	5.00	Each
9	Field Programmable Gate Arrays - FPGAs	144	Surface Mount	15.00	Each
10	LED	3	Surface Mount	1.50	Each
11	Switch	8	Surface Mount	1.25	Each

Search Index	Component Classification Includes	Pin Count	Mount Type	Unit Cost	Unit Type
12	Varistors	2	Through Hole	0.90	Each
14	Gas Discharge Tubes - GDTs	2	Surface Mount	0.50	Each
16	ESD Suppressors	2	Surface Mount	0.25	Each
17	TVS	2	Surface Mount	0.15	Each
18	Overcurrent Protection	2	Through Hole	0.50	Each
19	Clock Generators and Synthesizers	16	Surface Mount	5.00	Each
20	Direct Digital Synthesizers - DDS	16	Surface Mount	15.00	Each
21	Timing	8	Surface Mount	2.00	Each
22	Clock Buffers and Drivers	24	Surface Mount	3.50	Each
23	Controller Area Network	8	Surface Mount	0.75	Each
24	Connector	8	Through Hole	7.50	Each
25	Data Acquisition	24	Surface Mount	20.00	Each
26	RF FETs	3	Surface Mount	25.00	Each
27	Diodes, Transistors and Thyristors	3	Surface Mount	1.00	Each
28	Drivers and Interfaces	16	Surface Mount	2.50	Each
29	Relays and Solenoids	8	Surface Mount	4.00	Each
30	Amplifiers	8	Surface Mount	8.00	Each
31	Comparators	16	Surface Mount	4.00	Each
32	Inductor Leaded	2	Through Hole	0.90	Each
33	Inductor Surface Mount	2	Surface Mount	0.25	Each

Search Index	Component Classification Includes	Pin Count	Mount Type	Unit Cost	Unit Type
34	Transformers	8	Surface Mount	2.50	Each
35	Filters	6	Surface Mount	2.50	Each
36	Memory	48	Surface Mount	12.00	Each
37	Microcontrollers and Processors	324	Surface Mount	48.00	Each
38	Optoelectronics	8	Surface Mount	1.00	Each
39	Crystals and Resonators	2	Surface Mount	0.25	Each
40	Oscillators	10	Surface Mount	3.00	Each
41	Voltage References	8	Surface Mount	0.75	Each
42	Application Specific	16	Surface Mount	1.75	Each
43	DC to DC Conversion	12	Surface Mount	15.00	Each
44	Power Management	16	Surface Mount	2.50	Each
45	Programmable Devices	256	Surface Mount	15.00	Each
46	Sensors and Transducers	16	Surface Mount	3.50	Each
47	Standard and Specialty Logic	16	Surface Mount	0.50	Each
48	Transceivers	20	Surface Mount	0.75	Each
49	RF ICs	16	Surface Mount	8.50	Each
50	RF Amplifiers	4	Surface Mount	20.00	Each
51	RF Modules	8	Surface Mount	3.00	Each
52	Couplers	4	Surface Mount	2.00	Each
53	RF Attenuators	16	Surface Mount	3.50	Each

Known Issues and Workarounds

The following “Known Issues” have been identified in *aPriori Electronics Costing 2020-03*:

- The web-based data collection service does not support BOMs with more than 500 line items. If you have a BOM that is larger than 500 line items, it a best practice to split the BOM into several smaller BOMs and then run the smaller BOMs through data collection individually. You can recreate the complete BOM by combining the outputs from data collection by using a spreadsheet editor such as using MS Excel.
- The web-based data collection service is not fully supported in Internet Explorer or Microsoft Edge. Rendering issues may occur when using those browsers.

Upgrading to aPriori Electronics 2020-03

Upgrading to aPriori Electronics 2020-03 requires that the appropriate VPE, costing dialog, and User Defined Attribute data be installed. To determine the specific steps that are required to upgrade your deployment, contact your aPriori account team.

Contacting aPriori Customer Support

To contact aPriori Customer Support, use one of the following options:

Internet Web site: <http://www.apriori.com/support>

Email: support@apriori.com
