BOMs away

Screaming Circuits

Yes, I'm talking about BOMs (bills of materials), not bombs. That would be silly and irrelevant. At least mostly irrelevant. If you make bombs, it wouldn't be, but it would probably be all secret so we couldn't talk about it.

The question of the day is: "What makes a good BOM?" There are a lot of BOM formats in use. It's one area that the standards train more or less left behind. Well, there are standards. For example, IPC-2581 covers not only BOM standards, but a replacement for Gerbers and the whole manufacturing data package. One of these days, we'll all be using the IPC-2581 formats for our data and life will be beautiful all of the time.

However, those standards aren't really in common use today. And, they are complex enough that they can't really be used in spreadsheet form. There's a lot of nesting and hierarchy that makes it more difficult to deal with without a BOM management software package. Still there is good data in there. A lot of good data. So much good data that my head is still swimming.

But until that day, there is a set of data and data labels that will help ensure accuracy. The headers are important too. If this seems quite rudimentary, that's because it is. But it's important.

Item #	Qty	Ref Des	Manufacturer	Mfg Part #	Dist. Part #	Description	Package	Type
1	2	U1,U2	Texas Instrument	PMS430E337AHFD	PMS430E337AHF	IC MCU MIXED-SGNL EPROM 100-CQFP	CQFP	fine pitch
2	1	U3	Maxim	SJK194U53N292	LP339M	low power voltage comparator LP339	QFP	fine pitch
3	2	U4,U5	Microchip	24LC256-I/SM	24LC256-I/SM-ND	Memoria 254K 2.5V 8-SOIC	SOIC	smt

[1]

- "BomItem" or "Item #": This is just the line number. Each type of part gets an item line, not each part. If the pat number is the same, you just put it down once and give the quantity.
- "quantity" or "Qty": How many of this spefic part you need per board
- "RefDes": The reference designators used by the parts on the PCB silk screen. All of the same part number should be in the same excel spreadsheet cell: i.e., "R3, R4, R5, R6". You can also indicate a contiguous range with a dash: "R3-R6" or "R3-R6, R10, R15"
- "Manufacturer" or "Manf": The name of the component manufacturer. It's best to spell out the full name, e.g., "Texas Instruments", but common abbreviations such as "TI" generally work too. The less ambiguity, the better.

- "Mfg Part #" or "Manufacturer Part #": The part number that you would use if you were buying this exact part from the manufacturere or a distributor. All of the suffixes are important too. For example, "PIC16F88" is not enough when you really need a "PIC16F88-I/P".
- "Dist. Part #" or "Distributor Part #":Not strictly necessary, but can help in cases with a bit of ambiguity. Again, this would need to be the exact partnumer as you would order it from that distributor.
- "Description"or "Desc": This is the component description as given by the manufacturer. Again, this isn't strictly required, just a good idea.
- "Package": This is the standard package type, e.g., "SOT-23", "TO-92", "0201". Again, not strictly necessary but can be a good redundant check.
- "Type": Optional indicator of the generic type. e.g., "fine pitch", "smt", "thru-hole", "Leadless". Not required but can help with assembly quoting.

That's not IPC-2581, but it is a good set of usual requirements. It's also best to put your final BOM on the first tab in your excel spreadsheet. That will make it easier for buyers to know exactly what you want.

Duane Benson
So long mom, I'm off to drop the bill of materials
So, don't wait up for me

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