



Altium

Altium Designer

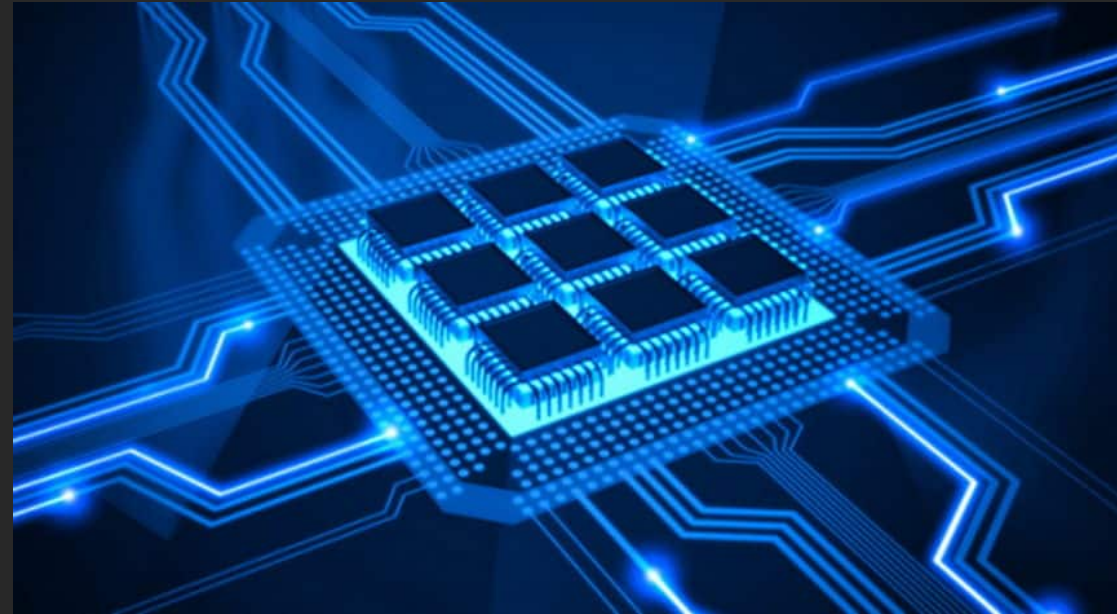


Alexsander Tamari

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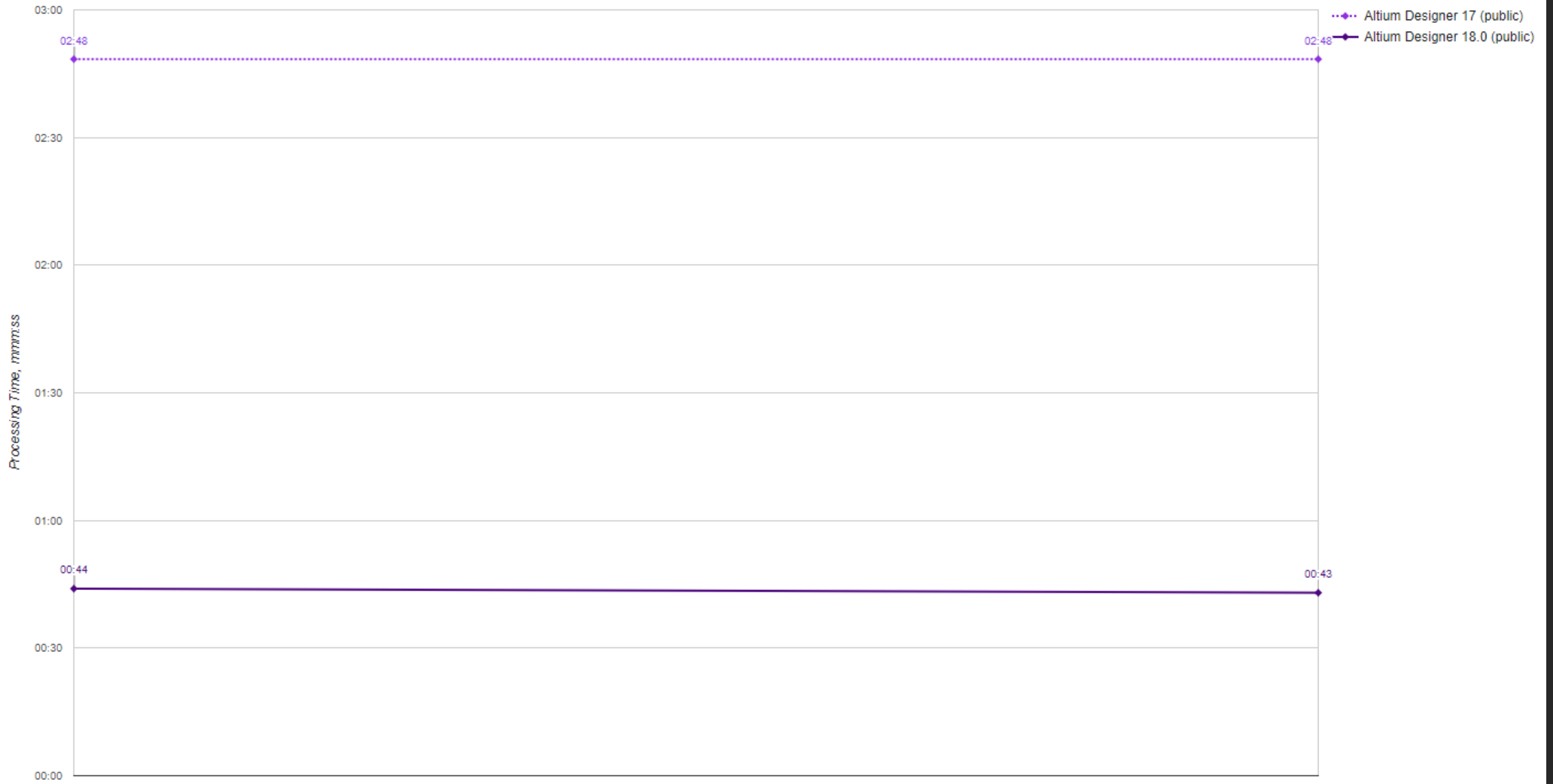
- 1 Performance Improvements
- 2 New User Interface
- 3 Multi-Board Assemblies
- 4 Bill Of Materials
- 5 Questions & Answers

- **Multi-threading**
 - Polygon Pour
 - Gerber generation
 - ODB++
- **64 bit**
 - Output Jobs
 - Large Designs
- **Selective Optimization**
 - Gerber generation
 - Net building



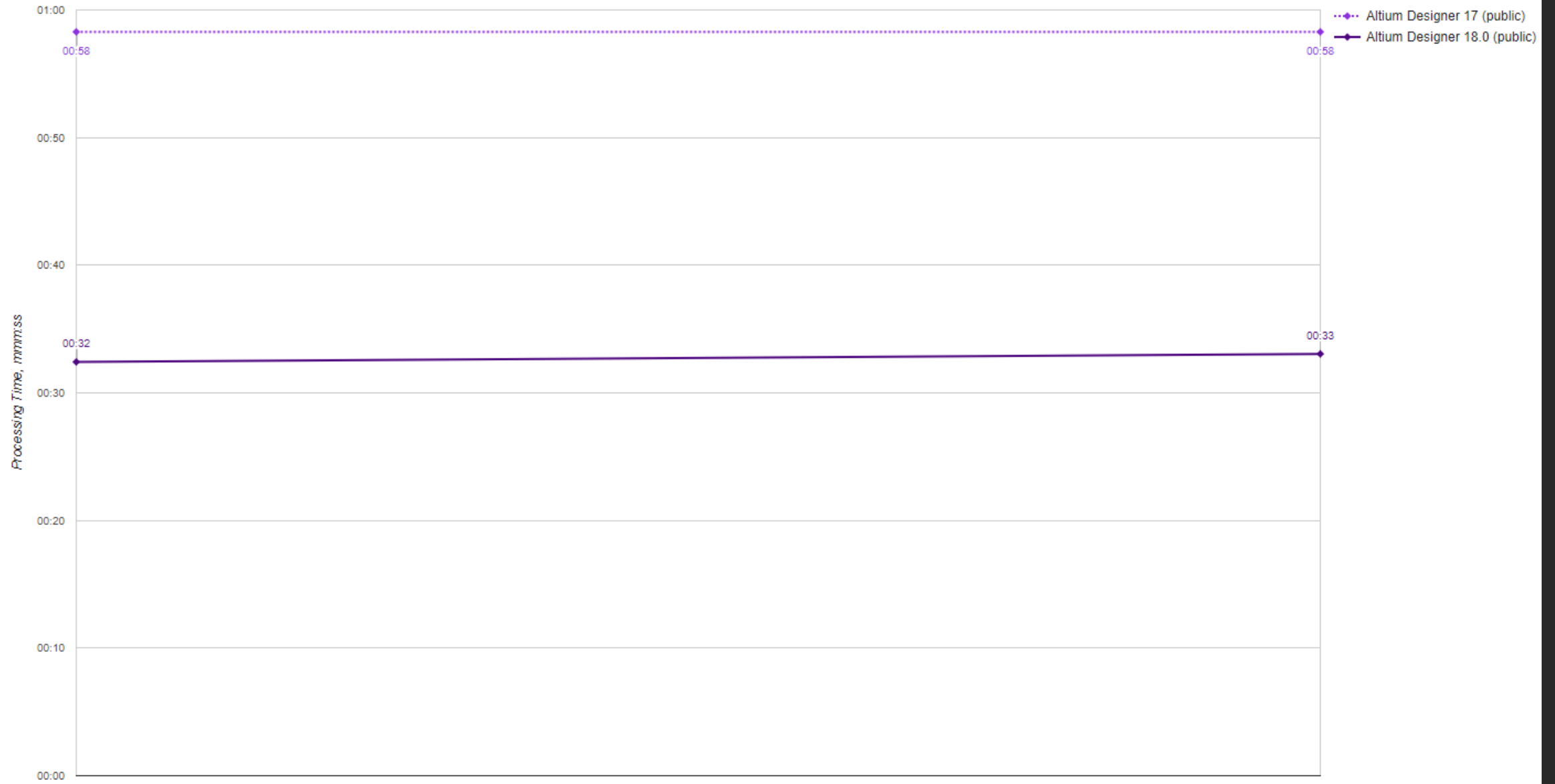


PCB - Polygon Pouring (Performance Autotesting)

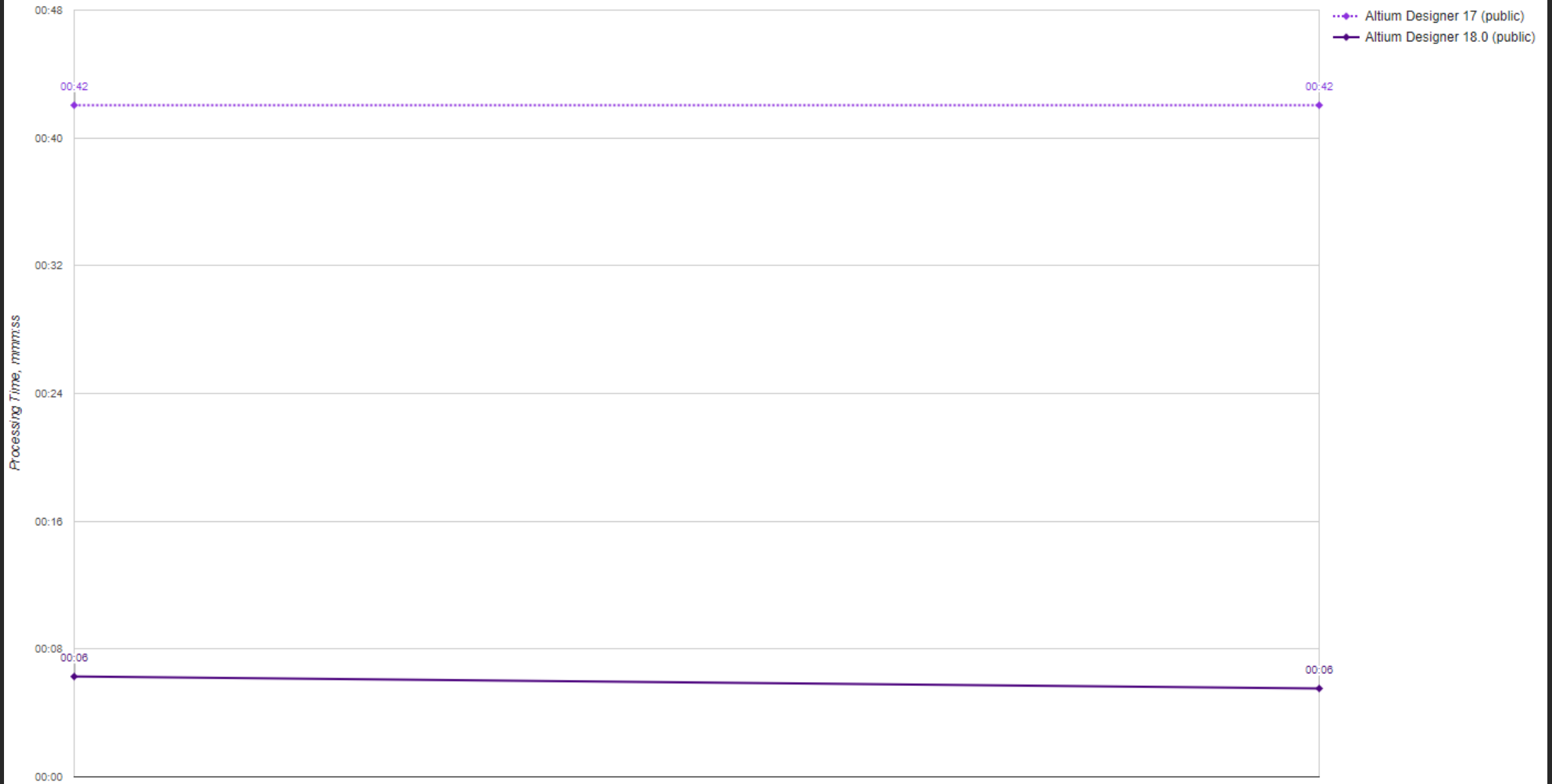




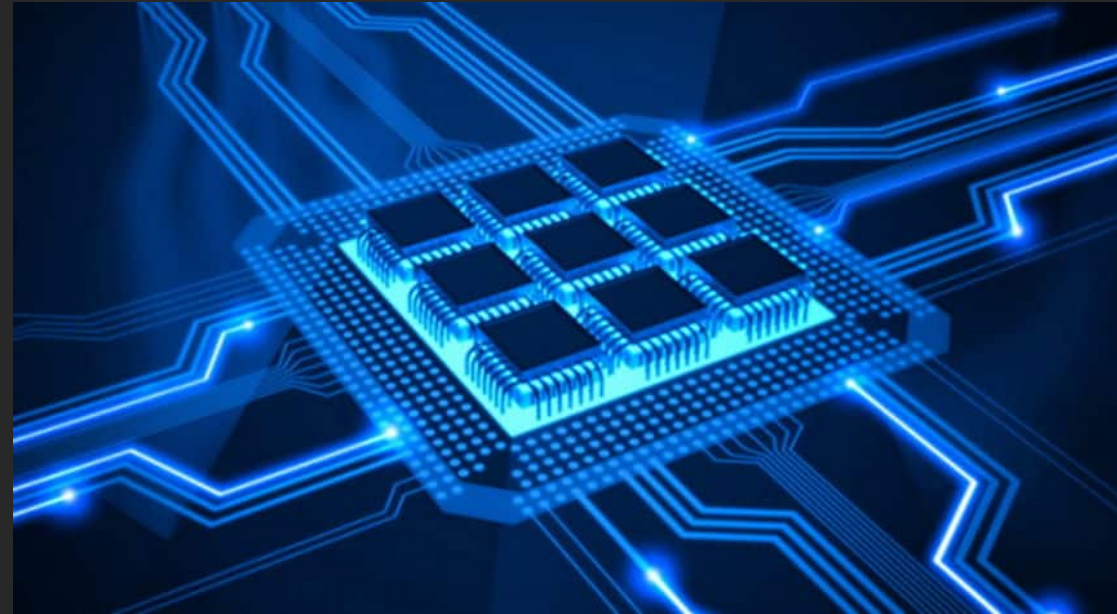
PCB - File Loading & DX Scene Building (3D) (Performance Autotesting)



PCB - Fabrication Outputs - Gerber Files (Performance Autotesting)



- **Multi-threading**
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Properties Panel

- Interactive
- Consolidated information
- Global editing
- Work in progress

The screenshot shows the Altium Properties Panel for a component. The panel is divided into several sections:

- Component:** Components (and 12 more)
- Search:** Search
- General / Parameters:** Tabs for switching between general properties and parameters.
- Location:** Fields for (X/Y) coordinates (82.194mm, 76.939mm), Rotation (0.000), and a lock icon.
- Properties:**
 - Layer: 1_Top
 - Designator: U1
 - Comment: 10AS066N3F40E25GE2
 - Description: Arria 10 SX Family, 588 I/O Pins, 16 Fractional PLLs, 1517-Pin FBGA, Speed Grade 2, Extended Grade, RoHS
 - Type: Standard
 - Design Item ID: CMP-1689-00006-3
 - Source: Altium Content Vault
 - Revision State: Released Up to date
 - Height: 3.5mm
 - 3D Body Opacity: 100%
 - Primitives and Strings: Lock icons
- Footprint:**
 - Footprint Name: ALTR-FBGA1517_A-350
 - Design Item ID: PCC-0014-00202-2
 - Source: Altium Content Vault
 - Description: BGA, 1517-Balls, Body 40x40mm, Pitch 1mm



View Configuration Panel

- Quick access to layer visibility & color
- 3D view settings
- Work in progress


View Configuration

Search

Layers & Colors | View Options

Layers

- All Layers Used On
- Signal And Plane Layers (5) Used On
 - [1] 1_Top (T) Signal
 - [2] 2_int1_(gnd) (2) Signal
 - [3] 3_int2_(power) (3) Signal
 - [4] 4_int3_(gnd) (4) Signal
 - [5] 5_int4_(sign) (5) Signal
 - [6] 6_int5_(power) (6) Signal
 - [7] 7_int6_(sign) (7) Signal
 - [8] 8_int7_(power) (8) Signal
 - [9] 9_int8_(gnd) (9) Signal
 - [10] 10_int9_(sign) Signal
 - [11] 11_int10_(gnd) Signal
 - [12] 12_int11_(sign) Signal
 - [13] 13_int12_(gnd) Signal
 - [14] 14_int13_(power) Signal
 - [15] 15_int14_(gnd) Signal
 - [16] 16_Bottom (B) Signal
- Component Layer Pairs (C) Used On
 - Top Layer Bottom
 - Overlay Solder
 - Paste
 - M13 3D Body M14
 - M15 Courtyard M16
- Mechanical Layers (M) Used On
 - OGR M1
 - Dimensions M2
 - Board Shape M11

A close-up photograph of a multi-board assembly. It shows several printed circuit boards (PCBs) stacked vertically, connected by gold-plated edge connectors. Various electronic components, including integrated circuits and surface-mount devices, are visible on the boards. The lighting is dramatic, highlighting the metallic surfaces and the intricate circuitry.

The electronic industry creates products which consist in most cases out of multiple boards, connections and mechanical elements

Electrical aspects must be considered

How to define and maintain correct connectivity between boards?

Mechanical aspects must be considered

How to connect and fit all boards in the enclosure?

Combined aspects must be considered

How to ensure that all signal path will meet the design requirements?

All aspects need to be equal considered

• Things To Know

- New Project type added – *Multi-board Design Project*
- True System-level design connects both Logical System Design and Physical Board Assembly
- Multi-board Schematic environment
 - Logical design environment connects modules representing child designs
 - Multiple connection types (e.g., direct connection, wire)
 - Connection Manager traces connectivity across designs
 - Changes can be pushed from one design to another
- Multi-board Assembly environment
 - Physically connects PCBs in 3D space
 - Collision checks
 - Component placement changes pushed to child PCBs

Group by ▾ Add new ▾ Reset Supply Chain

Item Details					Primary Solution				
Line #	Name	Description	Designator	Quantity	Manufacturer 1	Manufacturer Part Number 1	Manufacturer Lifecycle 1	Supplier 1	Supplier Part Number
1	CAP 20p...	CAP 20pF 10V...	C1, C2	2	KEMET	C0402C200C8GACTU	Unknown		
2	CAP 24p...	CAP 24pF 10V...	C3, C4, C27, C...	4	KEMET	C0402C240C8GAC	Unknown		
3	CAP 22p...	CAP 22pF 16V...	C5	1	KEMET	C0402C220C4GACTU	Volume Production		
4	CAP 2.2...	CAP 2.2uF 6.3...	C6, C11	2	TDK	C1005X5R0J225K	Volume Production		
5	CAP 100...	CAP 100nF 6.3...	C7, C8, C10, C...	8	KEMET	C0402C104J9RACTU	Unknown		
6	CAP 470...	CAP 470nF 6.3...	C9, C12, C13	3	TDK	C1005X5R0J474K	Volume Production		
7	CAP 33p...	CAP 33pF 10V...	C14	1	KEMET	C0402C330D8GACTU	Unknown		
8	CAP 1uF...	CAP 1uF 6.3V...	C15, C24	2	Yageo	CC0402KRX5R5B105	Volume Production	Future Electr...	4193405
9	CAP 100...	CAP 100nF 16...	C16, C17	2	Yageo	CC0402KRX7R7B104	Volume Production	Future Electr...	9094262
10	CAP 1uF...	CAP 1uF 16V...	C18	1	TDK	C1005X5R1C105K	Not Recommended for New...		
11	CAP 10u...	CAP 10uF 10V...	C20	1	TDK	C1608X5R1A106M	Volume Production	Digi-Key	445-6853-6-ND
12	CAP 1.5...	CAP 1.5pF 10...	C26	1	Vishay Vitramon	VJ0402A1R5BXQPW1BC	Volume Production	Mouser	77-VJ0402A1R5BXQF
13	LFB212...	LFB21(0805)...	FL1	1	Murata	LFB212G45SG8A143	Volume Production		
14	BK-912...	Coin Cell Holde...	J1	1	Memory Protection...	BK-912-TR	Volume Production	Digi-Key	BK-912DKR-ND
15	7447966	SMD-Multilayer...	L1	1	Würth Electronics	7447966	Unknown		
16	MMZ10...	Chip Bead for...	L2	1	TDK	MMZ1005Y-152CT	Volume Production	Farnell	2800748
17	LNJ247...	Hight Bright Su...	LED1, LED2,...	6	Panasonic SSG	LNJ247W82RA	Volume Production	Avnet	LNJ247W82RA/BKN
18	4K7 5%...	4K7 0.063W 5...	R1, R2	2	Boums	CR0402-JW-472GLF	Volume Production	Farnell	1800889
19	200R 5...	200R 0.063W...	R3, R4, R5, R...	6	Yageo	RC0402JR-07200RL	Volume Production	Farnell	1799584
20	10K 5%...	10K 0.063W 5...	R9, R10, R12,...	7	Vishay Dale	CRCW040210KQJNED	Volume Production	Allied Electro...	70202521
21	Jumper...	Jumper 0402 (...)	R11	1	Panasonic	ERJ-2GE0R00X	Volume Production	Allied Electro...	70260855
22	CSR101...	Bluetooth Low...	U1	1	CSR	CSR1010A05-IQQM-R	Volume Production	Future Electr...	9050236
23	24AA51...	512K bits I2C™...	U2	1	Microchip	24AA512-I/SN	Volume Production	Avnet	24AA512-I/SN
24	LIS331D...	MEMS motion...	U3	1	STMicroelectronics	LIS331DLTR	Not Recommended for New...		

- Real Time Part Information
- BOM Rule Checking
- Supplier Ranking

PRIMARY Stock: 29k \$0.01047 min Volume Production

Bourns CR0402-JW-472GLF
Thick Film Resistors - SMD 4.7K OHM 5%
Datashet ★★★★★
5 SPN(s) available

Farnell	Mouser	Digi-Key	Digi-Key	Farnell
1800889 Stock: 19183 Unit: \$0.05625 Order qty: 2 Order: \$0.11251	652-CR0402-JW-472GLF Stock: 674 Unit: \$0.10 Order qty: 2 Order: \$0.20	CR0402-JW-472GLFDR-ND Stock: 35 Unit: \$0.10 Order qty: 2 Order: \$0.20	CR0402-JW-472GLFCT-ND Stock: 35 Unit: \$0.10 Order qty: 2 Order: \$0.20	2445536 Stock: 10000 Unit: \$0.01047 Order qty: 10000 Order: \$104.72
1 @ \$0.05625 100 @ \$0.01947	25 @ \$0.03987 50 @ \$0.04	1 @ \$0.10 100 @ \$0.01	10 @ \$0.025 100 @ \$0.01	10000 @ \$0.01047

SECONDARY 1 Stock: 42662k \$0.00298 min Volume Production

Panasonic ERJ-2GEJ472X
Res Thick Film 0402 4.7K Ohm 5% 0.1W(1/10W) ±200ppm/...
Datashet ★★★★★
9 SPN(s) available

Mouser	Digi-Key	Digi-Key	Allied Electronics	Digi-Key	Newark	Avnet
667-ERJ-2GEJ472X Stock: 291420 Unit: \$0.015 Order qty: 10 Order: \$0.15	P4.7KJCT-ND Stock: 10085591 Unit: \$0.10 Order qty: 2 Order: \$0.20	P4.7KJDKR-ND Stock: 10085591 Unit: \$0.10 Order qty: 2 Order: \$0.20	70260888 Stock: 60000 Unit: \$0.01 Order qty: 100 Order: \$1.00	P4.7KJTR-ND Stock: 10020000 Unit: \$0.00298 Order qty: 10000 Order: \$29.80	25AC9005 Stock: 5450000 Unit: \$0.004 Order qty: 10000 Order: \$40.00	ERJ-2GEJ472 Stock: 54300 Unit: \$0.004
1 @ \$0.10 50 @ \$0.015	1 @ \$0.10 100 @ \$0.0117	1 @ \$0.10 100 @ \$0.0117	100 @ \$0.01 5000 @ \$0.007	10000 @ \$0.00298 50000 @ \$0.0024	10000 @ \$0.004 30000 @ \$0.00262 100000 @ \$0.00236	10000 @ \$0.004 40000 @ \$0.004