

SUPPLY INTELLIGENCE

Materials Report

2019 | July-Aug-Sept-Oct-Nov-Dec

Market trends and analysis report

Q3-Q4 Market trends and analysis for the year.

The market is soft right now. Due to the market last year a lot of OEM's and CM's have plenty of inventory on most MLCC's and other parts. Lead times are still long for new orders, but chances are you can find stock in the market place. for now. With IoT & 5G increasing demand for Tantalum capacitors and MLCC's which are the closest alternative we expect the market to increase demand next year.

Some Customers are requesting the Contract Manufacturers move production out of China because of the Tariff situation This is a long process , but we know some OEM's have already started moving.

Memory products reducing in price over supply carried over from 2018 ,and US/China trade war believed to have played a part in the slowing rate of consumption.

Although the components are reducing prices , the raw materials and shipping are increasing.

Aluminum capacitors lead time increasing do to China manufacturers forced to cease production of Aluminum strictly government controlled, for not adhering to green environmental policies.

Trade tensions are increasing between Japan and South Korea. Japan has restricted exports to South Korea of three crucial chemicals used in making semiconductors, and display screens. Could disrupt production by Samsung Electronics & SK Hynix to their big Tech customers. Such as Apple & Huawei.

LEADTIMES & PRICING Analysis

- \ **MLCC** – market softening .Multilayer ceramic capacitors still long lead times for new orders. Murata last time buys past. Kemet not taking orders.
- \ **Chip Resistors** - Lead times are decreasing. Vishay still long lead times.
- \ **Discrete** - Majority of the Discrete devices stabilizing.
- \ **Mosfets** - The lead times are decreasing a bit. Should fully stabilize end of year. There are still issues across many series and manufacturers, especially on low voltage capacities and SOT23 packages.
- \ **Memory** - Memory prices have continued to decline because of supply carried over from 2018. Last month price dropped an average of 7% for 64GB/128GB RDIMM. Samsung prices decreasing faster than Micron.
- \ **Renesas** - Stopped production on several factories due to excess inventory.

Non-Volatile & Volatile Memory

	Pricing	Lead Time	Supply	General Lead Time
Nand-Flash	Stable	Decreasing	Stable	8-12 w
Nor-Flash	Stable	Decreasing	Stable	8-12 w
EeProm	Stable	Stable	Stable	6-12 w
SRAM	Stable	Stable	Stable	6-20 w
DRAM	Stable	Stable	Stable	6-10 w
DDR3-DDR4	Stable	Stable	Stable	8-10 w
EPROM	Stable	Stable	Stable	6-12 w

- \ ST Micro is reporting market has slowed down and flat 20 weeks in most cases.
- \ DRAM is stable.
- \ Micron lead times stable for Flash, SDRAM, DDR, DDR2, DDR3 price is stable, looks to be softening. Suggest Alliance for SRAM and DRAM, and Adesto for Flash.
- \ Renesas lead times good , they are actually reporting excess inventory
- \ IDT stable for SRAM.

Analog, Linear, Logic

	Pricing	Lead Time	Supply	General Lead Time
Data converters	Stable	Stable	Stable	7-8 w
Amplifiers	Stable	Stable	Stable	8-24 w
Interfaces	Stable	Stable	Stable	8-10 w
Power Management	Stable	Stable	Stable	2-16 w
Logic	Stable	Stable	Stable	8-20 w
Programmable Logic-FPGA	Stable	Stable	Lt's extend	8-20 w
Linear	Stable	Stable	Stable	4-22 w
Sensors	Stable	Stable	Stable	8-12w
Standard Analog	Stable	Stable	Stable	6-8 w

- \ Data Converters are stable besides Automotive VNX series : 24+ weeks.
- \ Amplifiers are mostly stable On-Semi and ST Micro decreasing their lead time.
- \ Power Management are stable.
- \ Sensors decreased lead times and stable
- \ Logic stabilized Microchip is stable.

Passives

	Pricing	Lead Time	Supply	General Lead Time
Chip Resistors	Stable	Reducing	Stable	12-45w stabilizing
Network & Array Resistors	Stable	Stable	Stable	+16w
Non-Linear Resistors Thermistors	Stable	Stable	Stable	13-15w
Trimmers & Pots	Stable	Stable	Stable	10-14w
Varistors	Stable	Stable	Stable	6-14w
Fuses	Stable	Stable	Stable	2-10w
Frequency Control-Crystals & Oscillators	Stable	Stable	Stable	10-14w
Resonators	Stable	Stable	Stable	12-14w
Filters	Stable	Stable	Stable	8-32w

\ Rohm is still on allocation and Vishay is at 30+ weeks

Passives Continued

	Pricing	Lead Time	Supply	General Lead Time
Ceramic Capacitors	stable	Stable	Stable	20-52+w
SMP Tantalum Capacitors	stable	Stable	Stable	14-30w
Film Capacitors	Stable	Stabilizing	Stable	12-16w
Aluminum Capacitors	stable	Stable	Stable	15-40w
Coils-inductors-chokes	Stable	Stable	Stable	8-20w
Transformers	Stable	Stable	Stable	8-14w
Ferrites	Stable	Stable	Stable	6-12w
Inductors	Stable	Stable	Stabilizing	12-40+w

- \ MLCC Market softening - lead time stabilized.
- \ Tantalum Capacitors lead time stable for now IoT and 5G expected to expand next year.
- \ Film capacitors, less manufacturers carrying them.

Discretes

	Pricing	Lead Time	Supply	General Lead Time
Thyristors	Stable	Stable	stable	8-16 w
BiPolar Transistors	Stable	Stable	Stable	4-12 w
Transient Voltage Suppressors	Stable	stable	stable	10-24 w
Rectifiers	Stable	stable	stable	6-20 w
Small Signal Devices	Stable	stable	stable	6-20 w
Zener Diodes	Stable	stable	stable	7-15 w
IGBT	Stable	stable	stable	10-30 w
MOSFETs	Stable	stable	stable	10-24 w

- \ Lead time and pricing stabilizing, automotive still long lead time but stable.
- \ ST and On-Semi lead time decreases

Connectors

	Pricing	Lead Time	Supply	General Lead Time
HeadersDin, PCB	Stable	Stable	No constraints	6-12w
Board to Board High Speed	Stable	Stable	No constraints	8-14w
I/O , D-sub	Stable	Stable	No constraints	6-10w
IC Sockets	Stable	Stable	No constraints	8-14w
Terminal Blocks & Crimps	Stable	Stable	No constraints	6-12w
RF Connectors	Stable	Stable	No constraints	6-12w
Automotive	Stable	Stable	No constraints	6-12w

\ Stable for all connectors.

Electro Mechanical & Optoelectronics

	Pricing	Lead Time	Supply	General Lead Time
Circuit Breakers	Stable	Stable	No constraints	Stock-14w
Fans & Blowers	Stable	Stable	No constraints	14-16w
Heat Sinks	Stable	Stable	No constraints	Stock-8w
Relays	Stable	Stable	No constraints	6-26 w
Sensors	Stable	Stable	No constraints	8-10w
Switches	Stable	Stable	No constraints	8- 12w
Power Supplies	Stable	Stable	No constraints	6-14w
Infrared Comp	Stable	Stable	No constraints	6-14w
Isolation Comp	Stable	Stable	No constraints	4-16w
LED Displays	Stable	Stable	No constraints	8-12w
LED	Stable	Stable	No constraints	6-12w

\ Panasonic series still long lead time up to 26 weeks.

\ All others are stable.

REQUIREMENTS FOR SHIPMENTS OF LITHIUM BATTERIES and other issues affecting pricing and shipping

Lithium Batteries SEA FREIGHT

- \ If shipment weighs less than 300 kgs, no dangerous declaration is required
- \ Supplier to provide UN 38.3 test report in English
- \ Supplier to provide 1.2 m drop test in English
- \ Supplier to provide actual pictures of shipment, showing battery sample, design and labeling, as well as inner packing showing how batteries are packed

Lithium Batteries AIR FREIGHT

- \ Supplier to provide dangerous declaration: this is mandatory
- \ Supplier to provide UN 38.3 test report in English
- \ Supplier to provide a copy of the 2019 MSDS
- \ Supplier to provide 1.2 m drop test in English
- \ Supplier to provide actual pictures of shipment, showing battery sample, design and labeling, as well as inner packing showing how batteries are packed

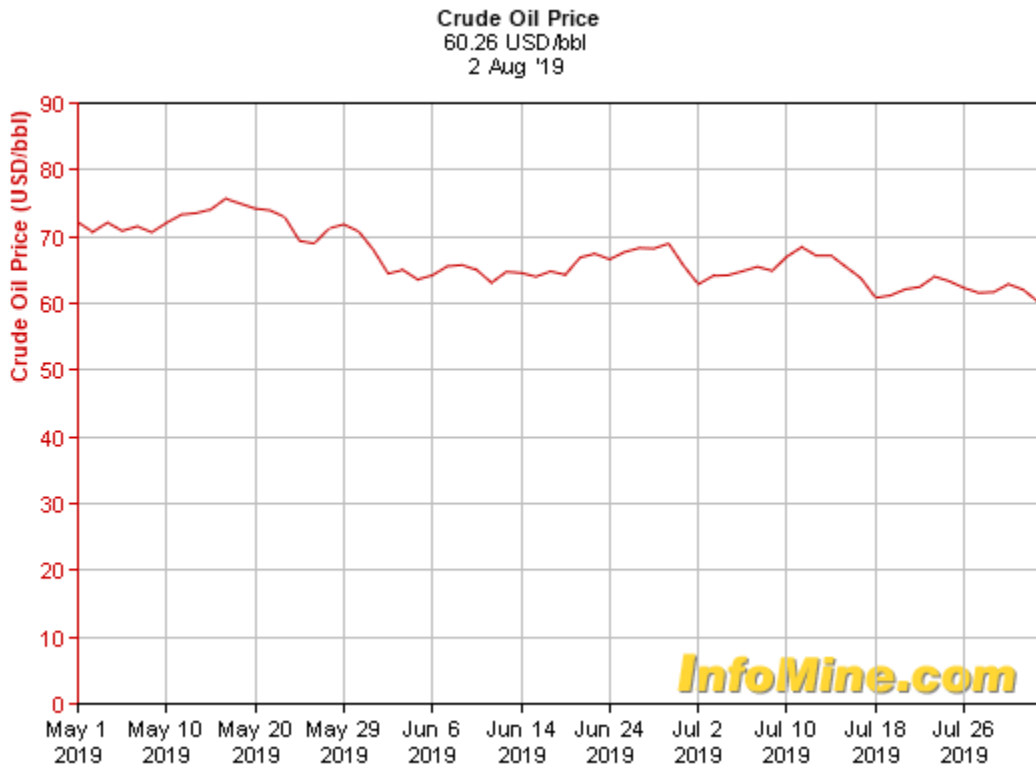
Other issues affecting pricing and shipping

- \ **US vs. CN: Section 301 tariffs - Update!** Please be advised that the US Government announced last week that the U.S.A would impose a 10% tariff on \$300 billion worth of Chinese imports. The tariff will take effect on Sept. 1st (list 4)
- \ **Market trends:** PSS (Peak Season Surcharge) is expected to take place at the end of the summer
- \ **UK Brexit:** planned to be effective starting October 31st with no deal: direct consequences on customs duties and taxes

OIL – Plastic, Transportation, utilities

- \ The first official assessment of 2020 comes from the International Energy Agency on Friday, but a first look at forecasts from consultants and traders for supply and demand balances show persistent surpluses, not the deficit that was expected to underpin rising prices.
- \ The culprits: rising shale production, a slowing global economy and the prospect of a deepening trade war.
- \ "The balances for 2020 were already worrisome, and the downgrade in demand we are contemplating put them potentially in the ugly category," said Roger Diwan, an OPEC watcher at consultant IHS Markit Ltd.
- \ Consultants and oil traders have already taken a first stab, and their supply and demand results show, at best, a balanced market. Many forecast supply will exceed consumption, perhaps by a large margin.
- \ "There is growing evidence of a sharper-than-expected slowdown in demand," said Martijn Rats, oil analyst at Morgan Stanley in London. Across the world's top oil consumers, year-on-year consumption growth came to a halt in March. April demand figures, still preliminary, also show little increase.
- \ Since the publication of the report, the IEA has raised its non-OPEC supply view for 2019, and lowered its demand forecast, suggesting that if the cartel keeps pumping at current levels, production will exceed demand in 2020.
- \ <https://www.bloomberg.com/news/articles/2019-07-31/oil-tankers-perform-vanishing-act-in-hormuz-as-tensions-escalate>

Crude Oil price



COPPER – PCB, Cables, Connectors, LCD

Pricing

- \ The International Copper Study Group 'ICSG' recently released its latest [supply and demand forecast](#) for the world copper market through 2020. The main conclusion is that the group sees a slight **supply deficit of about 1% (0.75%) of total demand**.
- \ In 2018, global mine production increased 2.5% in part given a weaker comparison period with 2017 that included a number of supply distributions from natural disaster and worker strikes. For 2019, global production should be relatively flat, up 0.2% to 20,641 thousand metric tons 'TMT'. The other component to supply is the refined production that is expected to increase 2.8% to 24,780 TMT. The difference between the two numbers (mine production and refined production) is the implied scrap and inventory supply. The idea here is that copper mine production is refined representing the supply, and the refined usage is indicative of demand.
- \ Into 2020, global demand is expected to increase 1.4%, above a 1.2% increase in refined production. The world refined market deficit is expected to increase to 250,000 metric tons in 2020 from 189,000 in 2019, still less than 1% of the total annual refined usage "demand.". My take is that **the estimates here are tight and a number of input uncertainties could tilt the actual numbers in either direction**. The real wildcard in my opinion is Chinese demand which is a key driver of the market.
- \ <https://seekingalpha.com/article/4270018-copper-outlook-update-june-2019>

Cooper price



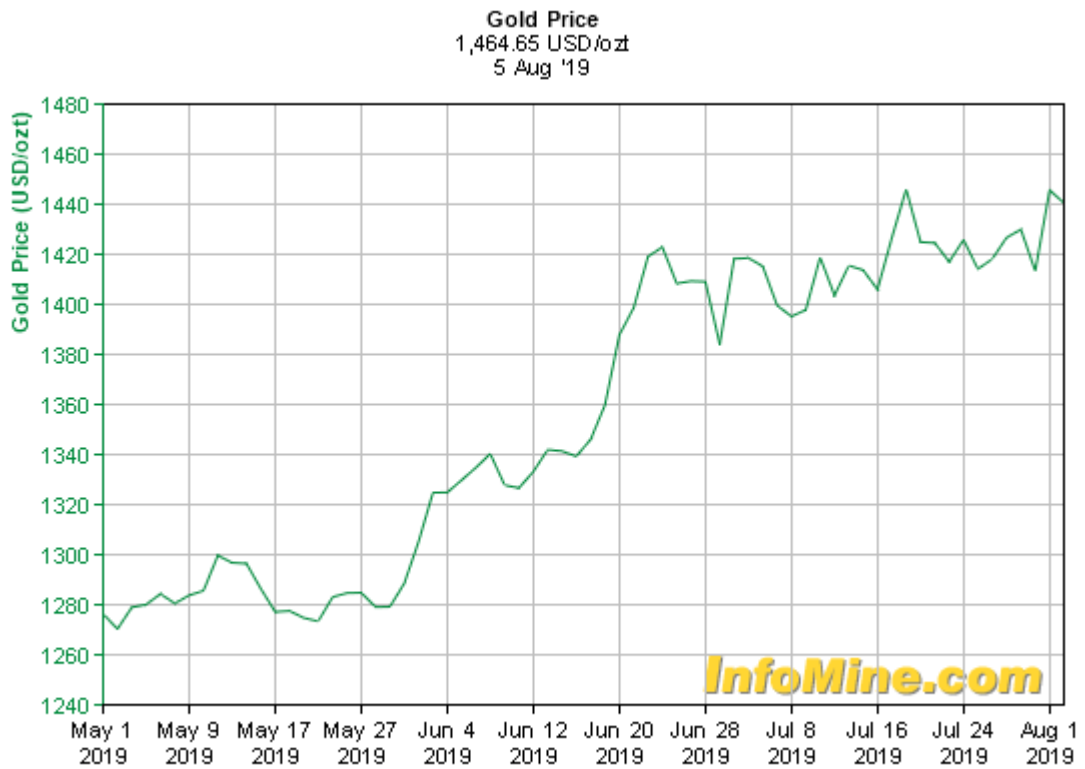
Q3/Q4 2019

GOLD – CONNECTORS, PCB, PLATING

Pricing

- \ Gold hit a six-year high on Friday as investors piled into the safe haven metal amid an escalating US-China trade war, and the prospects of a return to ultra-loose monetary policy by the Fed.
- \ Gold for delivery in December, the most active futures contract trading in New York, touched a high of \$1,461.90 an ounce before settling \$25.10, or 1.8%, higher at \$1,457.50 on the Comex market.
- \ According to [MarketWatch](#) — quoting FactSet data — that is the highest finish for the most-active contract since May 9, 2013.
- \ Ross Norman, CEO of Sharps Pixley, the top bullion broker in London, points out that the gold price in pound sterling hit an all time high on Friday of £1,187.28, beating the previous record set on September 11, 2011:
- \ <https://www.mining.com/gold-price-hits-six-year-high/>
- \ USAGOLD – 8/5/2019) – Gold moved sharply to the upside in overseas markets last night on China’s retaliation to last week’s announcement of new tariffs and the looming threat of the trade war progressing to an all-out currency war. Oddly, both the Chinese yuan and the U.S. dollar index tumbled – an initial sign that both could be pulled into a depreciation vortex that might envelop other currencies as well. Some think, and logic could very well dictate, that gold might end up the most viable alternative in such a circular firing squad. As it is, bond yields and stocks globally have dropped in alarming fashion. Gold is up \$23 at \$1464. Silver is up 26¢ at \$16.47. Investors, it would appear, are heading for shelter.
- \ <https://www.usagold.com/cpmforum/>

GOLD price



Q3/Q4 2019

PCB- Pricing →

- \ The future of the PCB market looks promising with opportunities in the computer/peripherals, communications, consumer electronics, industrial, automotive, and military/aerospace industries. The major growth drivers for this market are increasing demand for PCB in the communication industry, growth in connected devices, and advancement in automotive electronics.
- \ Emerging trends, which have a direct impact on the dynamics of the PCB industry, include miniaturization of printed circuit boards, growing demand for high speed data and signal transmission, and development of green PCBs.
- \ The report forecasts that standard multilayers will remain the largest substrate type due to increasing demand in computer and communication industries. The rigid-flex substrate is expected to witness the highest growth during the forecast period due to growing demand for smartphone and display applications.
- \ Within the PCB market, computers/peripherals will remain the largest end use industry during the forecast period due to increasing demand for computer systems in business, healthcare, and educational sectors. The consumer electronics segment is expected to witness the highest growth due to the increasing demand for connected devices.
- \ <https://www.prnewswire.com/news-releases/global-printed-circuit-board-pcb-market-expected-to-reach-an-estimated-89-7-billion-by-2024--with-a-cagr-of-4-3-from-2019-to-2024--300879227.html>

THANK YOU