

Ivent Solutions Market Trend Update

June 2022

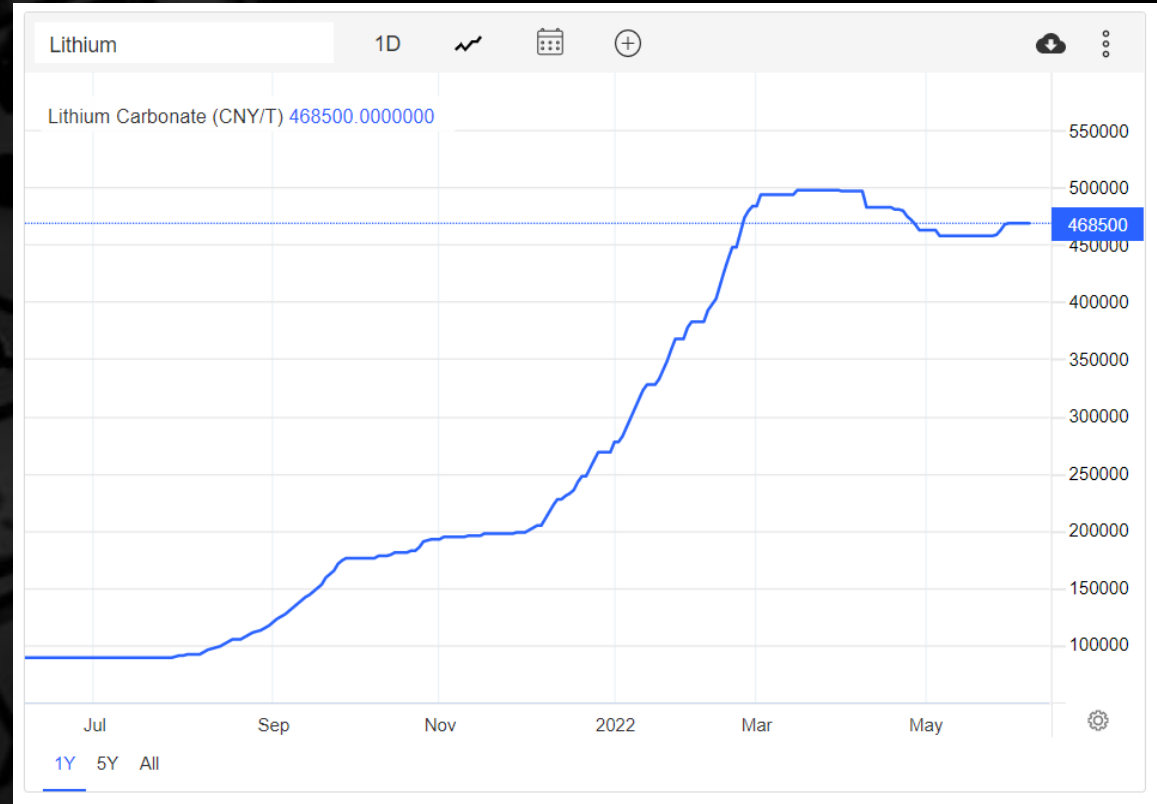


Lithium Pricing Showing Signs of Easing... Or Are They...?

Surging lithium carbonate and hydroxide prices in China took a breather in May, according to Benchmark Mineral Intelligence, but for chemical processors and battery manufacturers struggling to deal with prices doubling so far in 2022 it seems that the lull is unlikely to last... 😊

The mid-April assessment by the London based battery supply chain researcher and price reporting agency shows battery grade lithium carbonate (EXW China, $\geq 99.5\%$ Li_2CO_3) down just under 1% over the last two weeks, but still within shouting distance of USD75,000 a tonne. In April last year it was trading around USD15,000...!

Prices for lithium hydroxide, used in batteries with high-nickel cathodes, continued to rise in the first half of April. Hydroxide historically trades at a premium to carbonate and has been playing catch up – the gap is now down to around USD500 a tonne, from close to a USD10,000 discount in February. Benchmark says the slight downtrend in carbonate pricing “was not indicative of a wider market correction, but rather a temporary pause as a result of COVID lockdowns in China, with expectations that prices will continue to increase in May if virus measures are eased.”



Happy 70th Jubilee Liz!

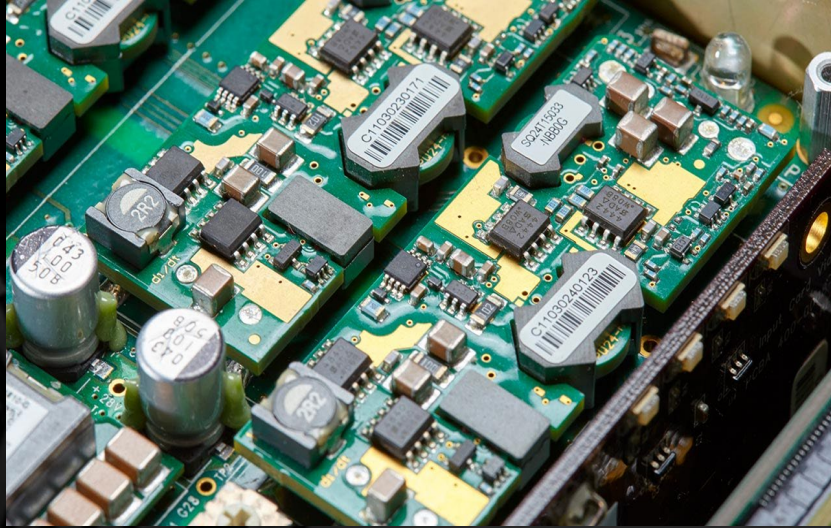


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Component Lead-Times, Price Increases and Inflation



It has certainly been a challenging few years for the electronics manufacturing industry, with no clear end in sight unfortunately. With the increase in global demand for components, along with widespread supply chain interruptions, the industry is facing serious ongoing issues. Manufacturers are now fairly accustomed to placing purchase orders at least 6 months ahead with long-lead-time components in the 12-18 month range. According to Investors Business Daily, "The semiconductor industry returned to growth in 2020 despite disruptions from the COVID-19 pandemic". This means we are faced with an industry that has been resilient in the face of the pandemic. According to World Semiconductor Trade Statistics, chip sales rose 6.8% to USD440 billion in 2020, with semiconductor sales then rising nearly 20% to USD527 billion in 2021! Furthermore, it forecasts chip sales will increase 8.8% in 2022...nothing like a bit of pressure... The overall semiconductor market appears to be doing well in terms of profitability for the OEM's, but this is not alleviating massive shortages in the global chip market. These adverse market conditions have downstream effects on the consumers of the end products, namely us, the poor old consumer!

There are several factors causing supply chain disruption. For example, there are huge demands for components from the automotive, appliance, and electronic device industries. Increased regulatory pressure on semiconductor companies, accidents at several high-profile Japanese semiconductor facilities exacerbated the issues, and some recent weather-related power outages at several Texas based plants have also contributed to the shortages.

Longer Lead Times

Demand is outpacing current manufacturing capacity causing extended lead times, especially in the PCB and assembly market. Manufacturers are also producing



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components in significantly lower volumes. Component allocations to manufacturers have been decreased across the board. This allows everyone to keep operating, but at significantly reduced plant capacities. Some component lead times have gone from 16 weeks to as long as 80-90 weeks. In addition, global market forces have caused Taiwan Semiconductor (TSMC), the world's largest semiconductor fabrication company, to fall behind **6 to 12 months** on customer orders.

The TSMC delays have negatively affected production capacity at major "fabless" manufacturers worldwide including:

- Xilinx
- ST Microelectronics
- Microchip
- Analog Devices
- On Semiconductor
- Micron
- Samsung (DDR3's)

These delays, spilling over into the manufacturers' base of worldwide "Global 1000" customers, has caused a cascading effect on the entire electronics industry.

Price Increases

As a result of longer lead times and limited availability of components, we are seeing manufacturers starting to raise their prices significantly. In some cases there are reports of extraordinary "expedite fees" being charged to meet delivery dates. We expect this trend to continue until at least the end of Q4 of 2022. Current worldwide economic conditions are also driving up the prices of natural resources like oil, copper, and other metals, including exotic and rare earth metals.

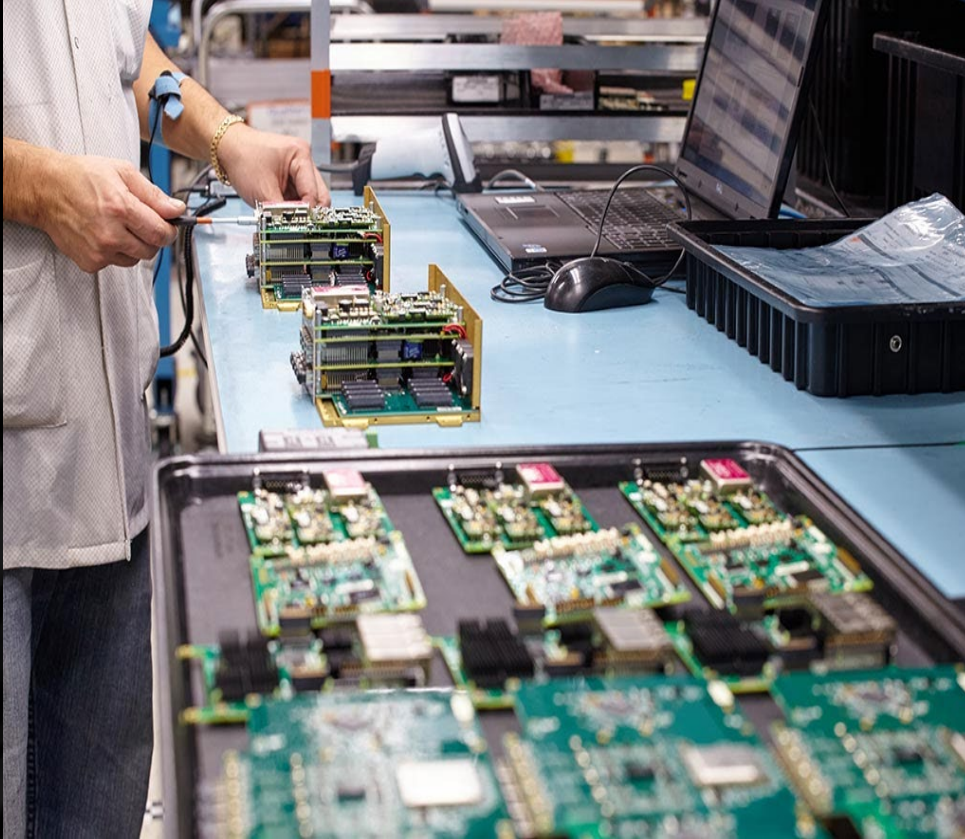


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Rising energy prices will also continue to increase transportation and operational costs at manufacturing plants and facilities throughout the electronics industry (with additional pressure from the clogged and expensive shipping lines).

Inflation

Inflation in April accelerated at its fastest pace in more than 12 years. The U.S. economic recovery kicked into high gear, causing energy prices to also climb higher, as reported by the United States Department of Labor. The Consumer Price Index, which measures the prices of goods and services commonly purchased by consumers and households, rose 4.2% from the previous year as well. This was a much larger increase than expected (with New Zealand following suit at close to 7% inflation).

Inflation will no doubt continue to drive prices up globally. Central banks are continuing to print money to combat the extended unemployment and economic malaise caused by the pandemic. There doesn't seem to be an end in sight for these policies. Many electronics manufacturers have also struggled to maintain their workforce of highly skilled professionals since the pandemic began in early 2020. Labor costs have increased significantly over the past 18 months, primarily due to personnel shortages and fierce hiring competition industry-wide.



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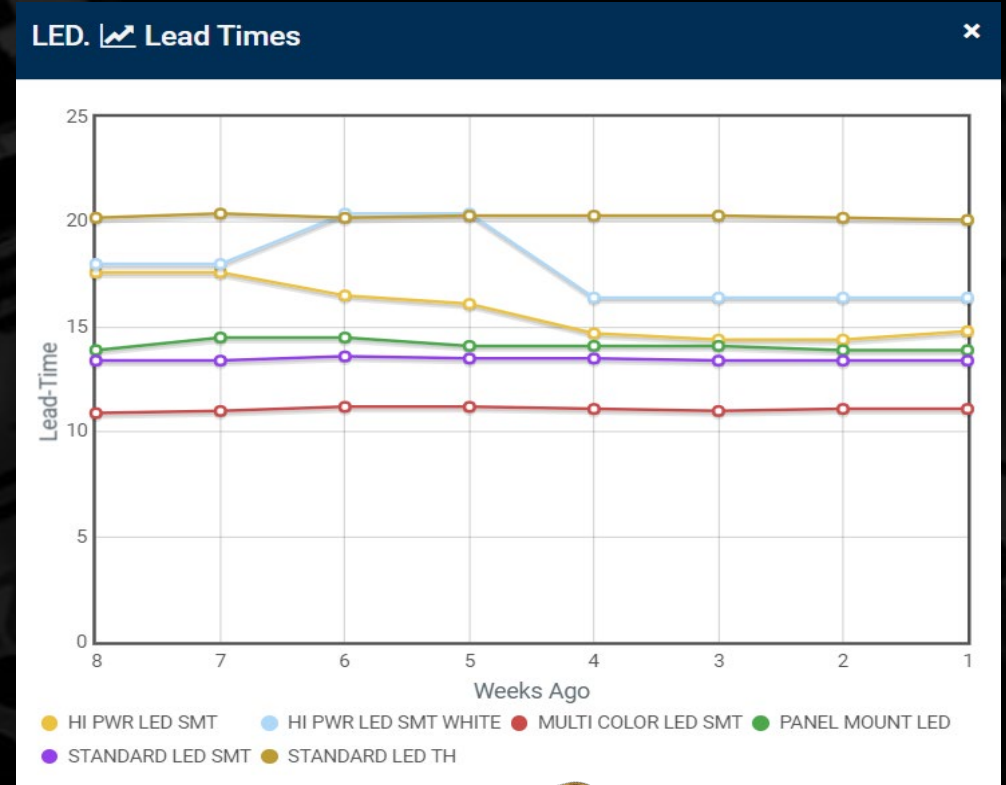
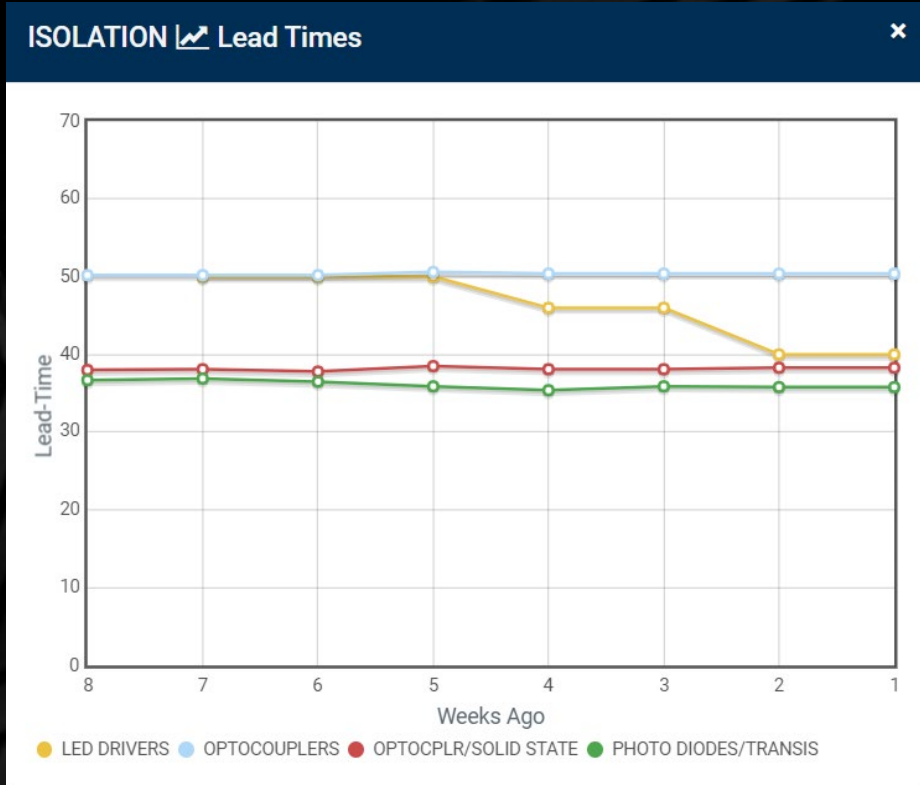


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Component Leadtime Updates

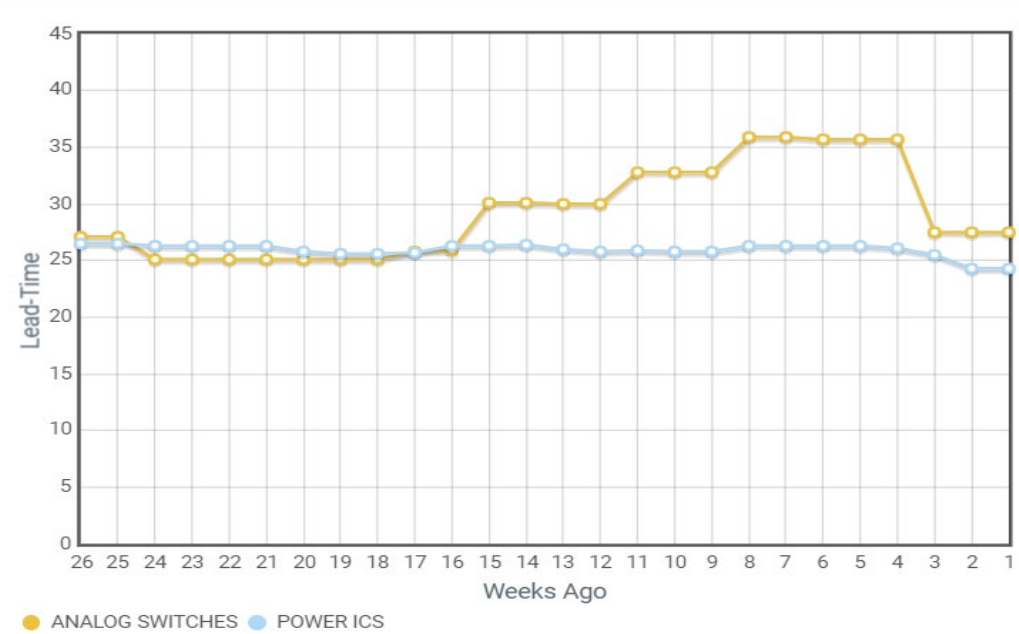
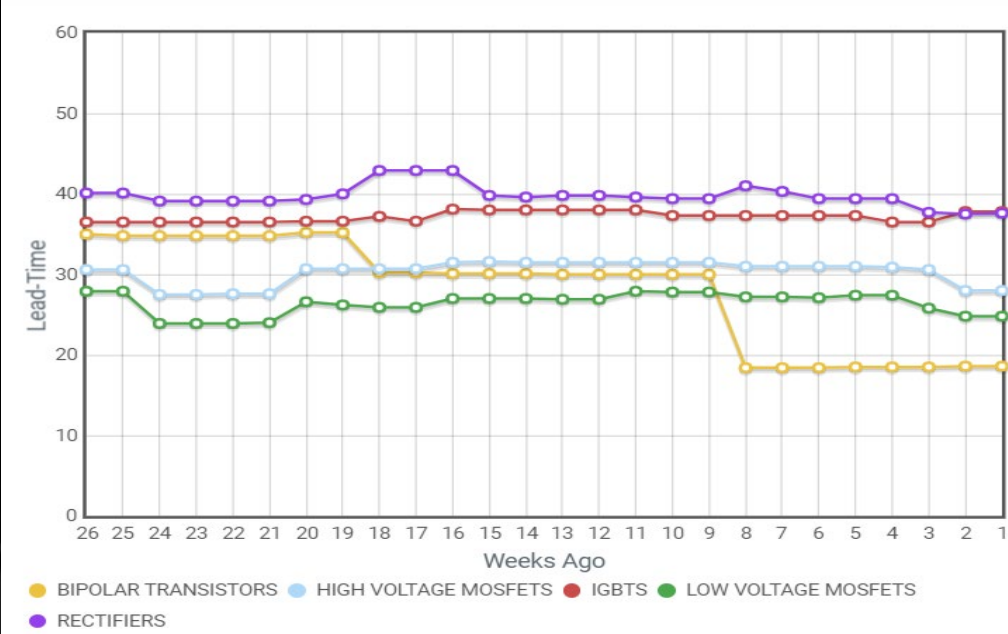


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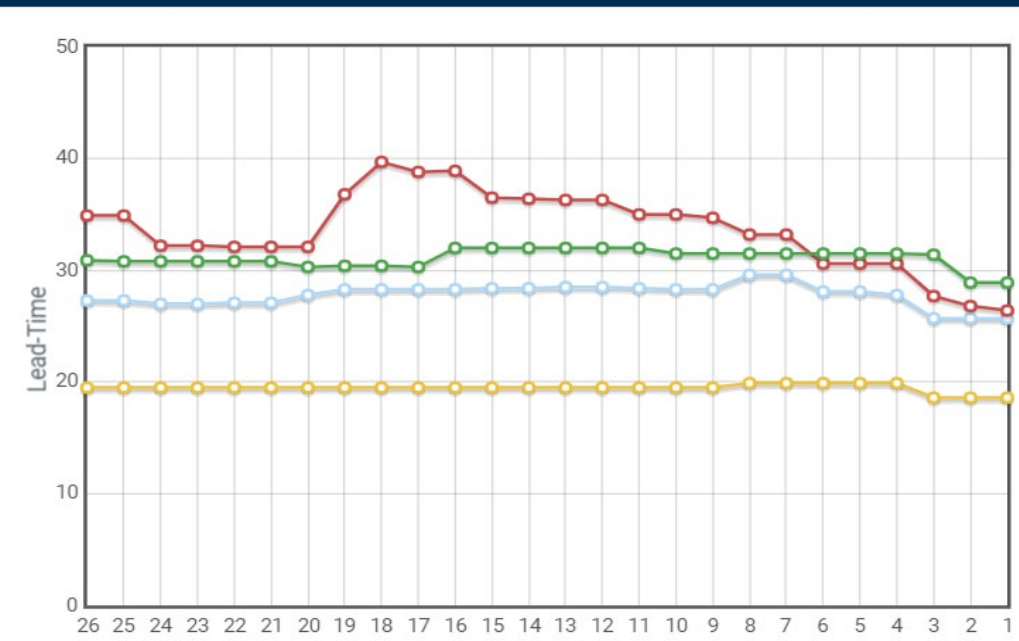
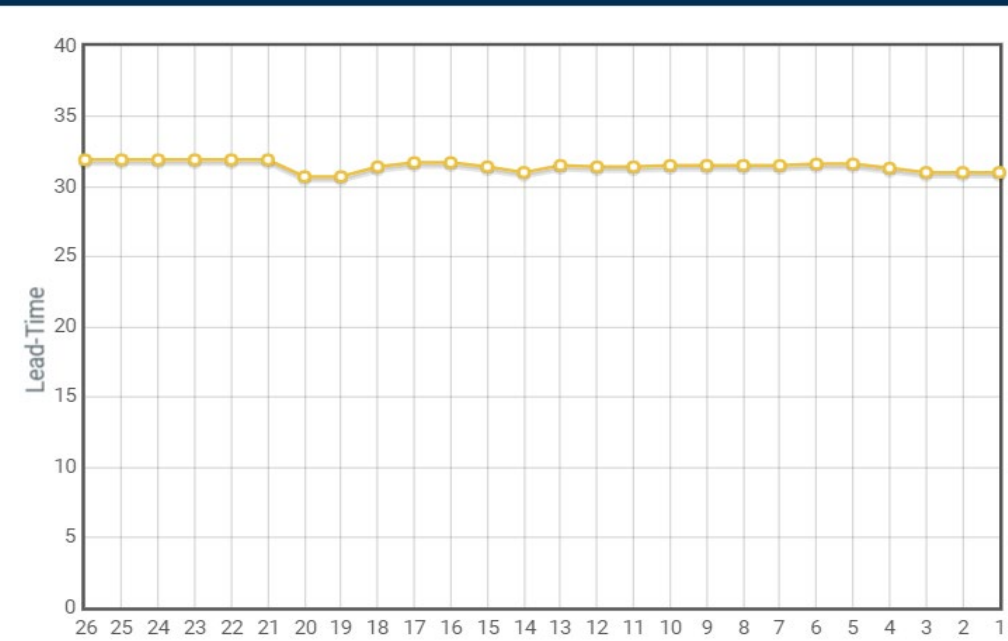
DISCRETE POWER Lead Times

ANALOG Lead Times



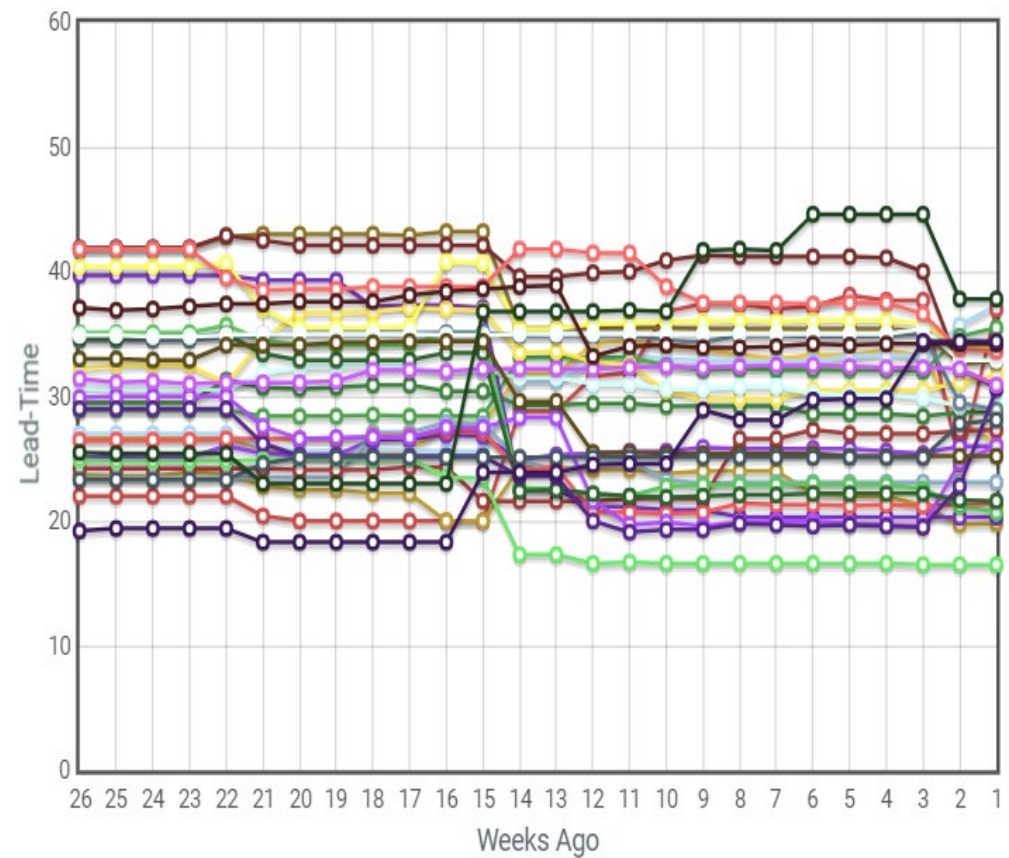
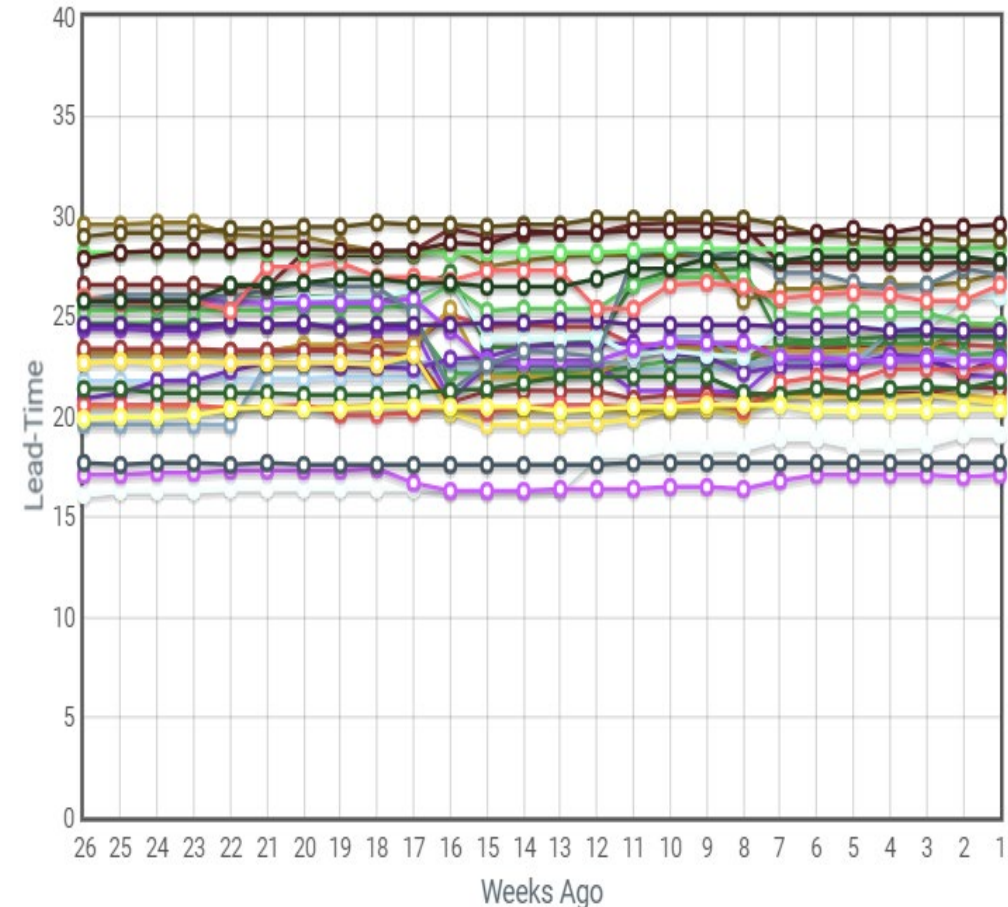
LOGIC Lead Times

SMALL SIGNAL Lead Times



CERAMIC Lead Times

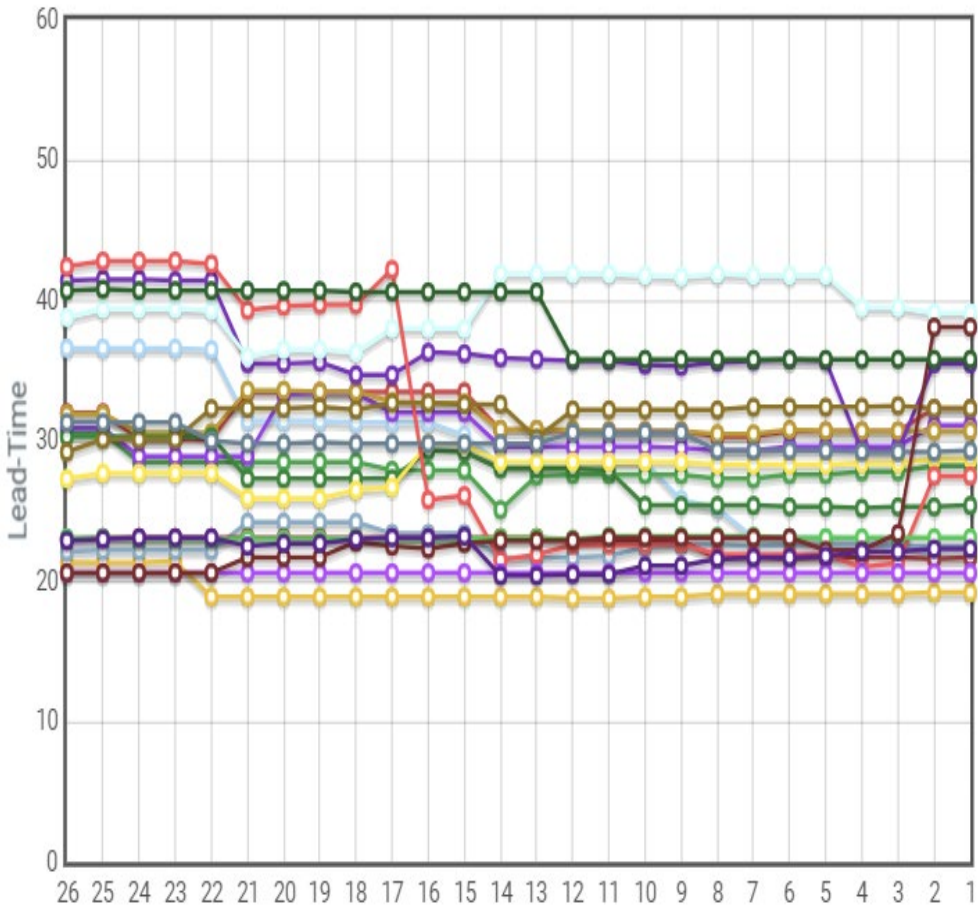
TANTALUM Lead Times



- 01005 MLCC
- 0201 MLCC
- 0201/0402 MLCC-HI CV
- 0402 MLCC
- 0603 MLCC
- 0603 MLCC - HI CV
- 0603 MLCC - HI VOLT
- 0805 MLCC
- 0805 MLCC - HI CV
- 0805 MLCC - HI VOLT
- 1206 MLCC
- 1206 MLCC - HI CV
- 1206 MLCC - HI VOLT
- 1210 TO 1825 - HI CV
- 1210 TO 1825 MLCC
- 1210+ MLCC - HI VOLT
- 2220+ MLCC
- 2220+ MLCC - HI CV
- ARRAYS
- AXIAL LEADED
- CK05-14
- DIP
- DISC
- HI-Q CERAMICS
- LOW INDUCTANCE
- RADIAL LEADED
- SMD RF CAPACITOR
- SMPS CERAMICS

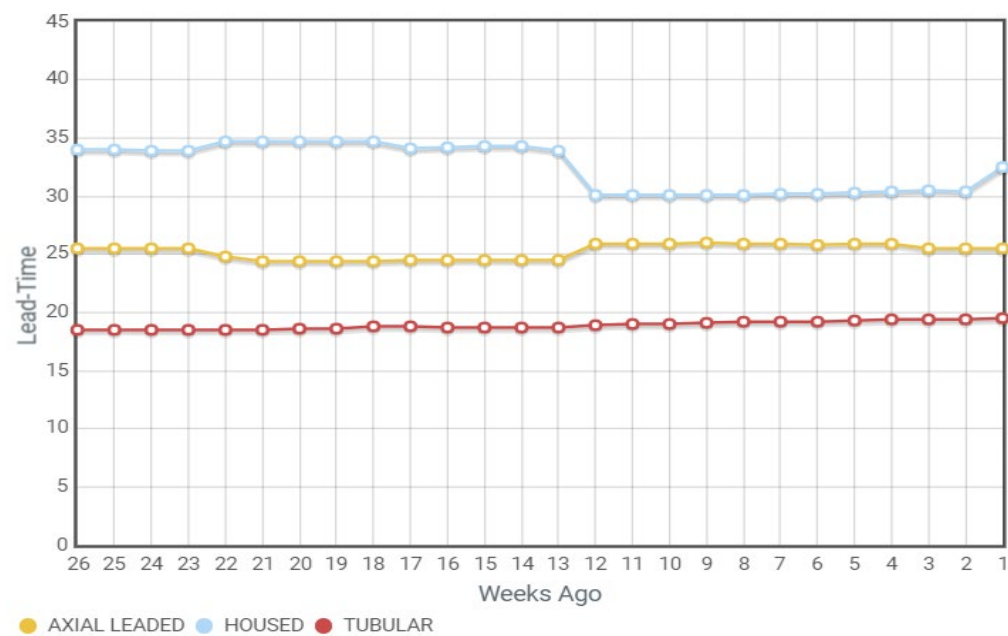
- (A) 1206 POLYMER
- (B) 1210 POLYMER
- (C) 2312 POLYMER
- (D) 2917 POLYMER
- (E) 2917/2924 POLYMER
- 0402 TO 0805 POLYMER
- CONFORMAL
- CONFORMAL COTS
- DIPPED
- FUSED
- HIGH TEMP
- LOW PROFILE/LOW ESR
- METAL AXIAL
- MOLD CHIP A-CASE
- MOLD CHIP B-CASE
- MOLD CHIP C-CASE
- MOLD CHIP D-CASE
- MOLD CHIP E/X CASE
- MOLD LOW ESR A-CASE
- MOLD LOW ESR B-CASE
- MOLD LOW ESR C-CASE
- MOLD LOW ESR D-CASE
- MOLD LOW ESR E/X
- MOLDED AXIAL
- MOLDED COTS
- MOLDED RADIAL
- MULTI-ANODE
- POLYMER COTS

METAL FILM Lead Times

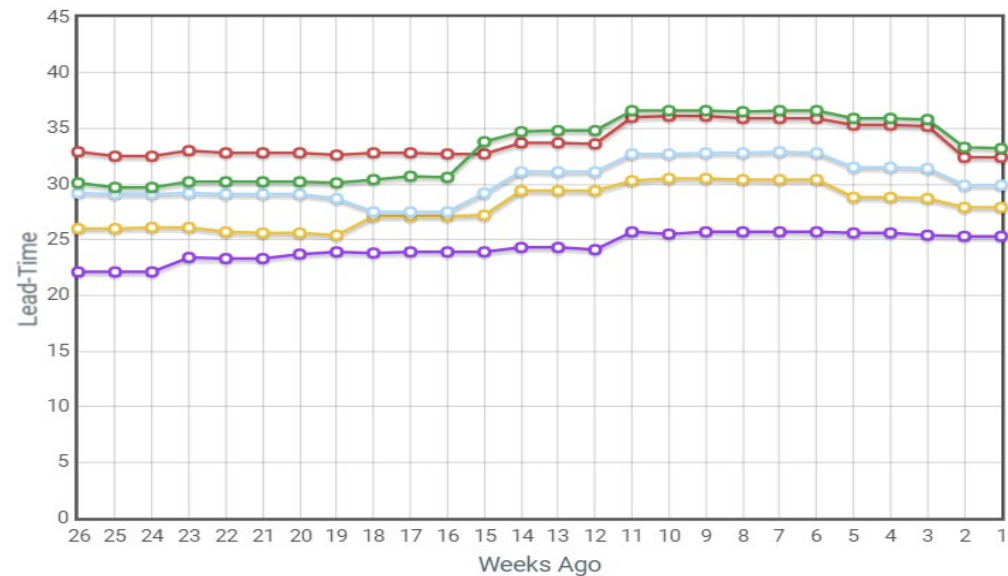


- CARBON FILM
- CHIPS (0201)
- CHIPS (0402)
- CHIPS (0603)
- CHIPS (0805)
- CHIPS (1206)
- CHIPS (1210-2512)
- GENERAL PURPOSE
- HP/ANTI-SRG/PP 0402
- HP/ANTI-SRG/PP 0603
- HP/ANTI-SRG/PP 0805
- HP/ANTI-SRG/PP 1206
- HP/ANTI-SRG/PP 1210+
- METAL FOIL
- METAL OXIDE
- POWER FILM > 20 WATT
- PRECISION
- PRECISION & MELF
- RN55-70
- SPECIALTY CHIPS

WIREWOUND Lead Times



THIN FILM Lead Times



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NZD versus AUD - AU\$0.905 vs NZ\$1.00



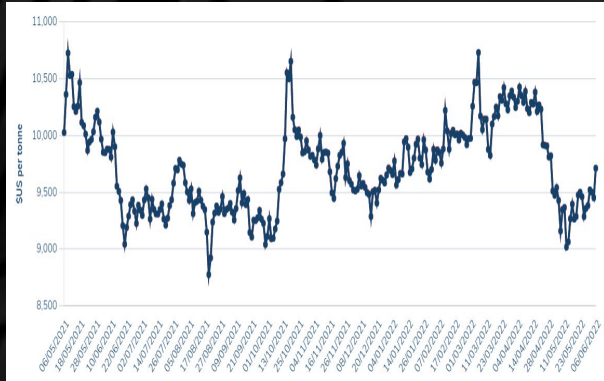
NZD versus USD - US\$0.645 vs NZ\$1.00



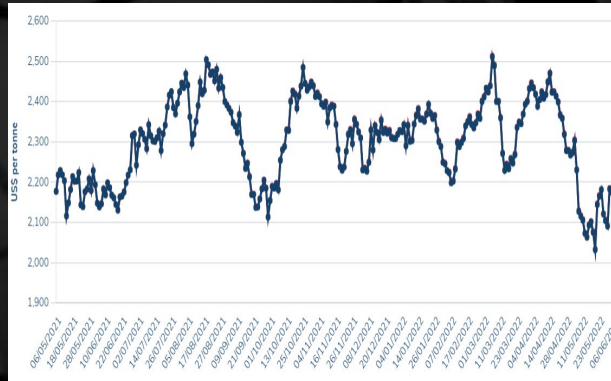
NZD versus EUR - EU\$0.605 vs NZ\$1.00



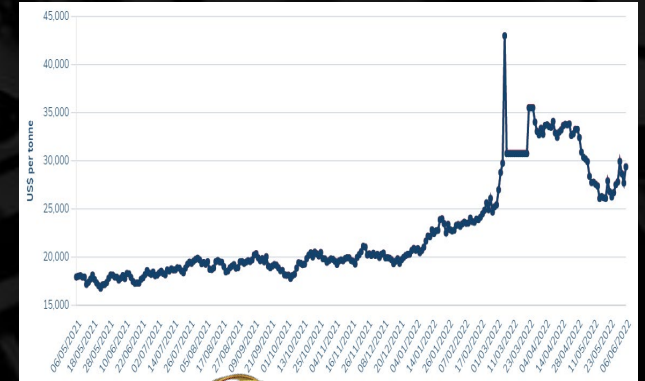
Copper - USD9750 / tonne



Lead - USD2200 / tonne



Nickel - USD29500 / tonne



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ivent

Electric cars



- Instant power delivery
- Low center of mass
- Variable power to each wheel



- Brap-Brap-StuStutututuuu

Petrol cars

FOUR TYPES OF LEGO TRAFFIC JAM



PETROL CARS

DIESEL CARS



ELECTRIC CARS

SELF-DRIVING CARS

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EXCLUSIVE SNEAK PEEK!



APPLE'S NEW ELECTRIC CAR

IT'S LIKE A VEGAN THAT SECRETLY EATS MEAT



EXPECTATION



OH, IS GAS EXPENSIVE?

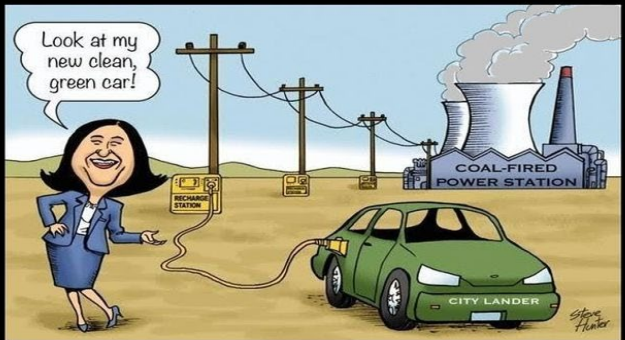


JUST BUY AN ELECTRIC CAR!

IS IT STILL CALLED A GAS PEDAL



ON AN ELECTRIC CAR?



REALITY

This Month in Tech History...



June 30, 1948 – Originally designed to create improvements to electromechanical relays and vacuum tubes in telephone switching equipment, Bell Labs holds a press conference in New York to publicly demonstrate the first point-contact transistor. The transistor represents a significant advance in technology. As it is developed over the next few years, it will become the successor to the vacuum tube, the primary method of controlling electronic circuitry at the time. The use of transistors allows the development of the integrated circuit and microchips which kickstarted the rapid advance of electronic and computerized technology over the last 60 years.

June 4, 1977 – The VHS videocassette format is introduced as Vidstar in North America at a press conference before the Consumer Electronics Show starts in Chicago. VHS, or Video Home System, was based on an open standard developed by JVC in 1976. As compared to the Sony Betamax format it would compete against, VHS allowed longer playtime, faster rewinding, and fast-forwarding.

June 5, 1977 – The original Apple II computer goes on sale. The Apple II featured an a 1MHz MOS 6502 processor, an integrated keyboard, a built-in BASIC programming environment, expandable memory (4K expandable to 48K), a monitor capable of color graphics, a sound card, and eight expansion slots. To include all these features in one discrete unit was highly innovative and the reason it is considered the first practical personal computer. However, in the spirit of the original computer hacker, the Apple II was also available as a circuit-board only, without keyboard, power supply, or case.

May 2, 1983 – Microsoft introduces the Microsoft Mouse for IBM and IBM-compatible PCs. The mouse featured two buttons and is available by itself or will later be bundled with the new Microsoft Word software, which Microsoft would release in September. Microsoft will manufacture nearly one hundred thousand units of the device, but will only sell five thousand before introducing a second, more popular version of the device in 1985.

June 3, 1983 – The NASA space probe Pioneer 10 crosses the orbit of Neptune, becoming the first man-made object to leave the Solar System. It was launched on March 2, 1972 toward the red star Aldebaran, which forms the eye of the constellation Taurus. The last contact with Pioneer 10 was on January 23, 2003.

June 6, 1984 – Alexey Pajitnov first releases the game Tetris in the USSR. Tetris will become one of the most popular puzzle video games of all time. Originally programmed for a Soviet-built Elektronika 60 computer, the game was soon ported to the IBM PC, where it spread quickly throughout Moscow and the rest of the USSR. Eventually making its way to Hungary, from there the game was discovered and questionable attempts to license it for sale by various software companies were made.



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CHINA HOLIDAYS 2022



JANUARY

						01
02	03	04	05	06	07	08
09	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

FEBRUARY

Chinese New Year

		01	02	03	04	05
06	07	08	09	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

Lantern Festival

MARCH

		01	02	03	04	05
06	07	08	09	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

APRIL

Qingming Festival

						01	02
03	04	05	06	07	08	09	
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	

MAY

May Day

01	02	03	04	05	06	07
08	09	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

JUNE

				01	02	03	04
05	06	07	08	09	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30			

Dragon Boat Festival

JULY

						01	02
03	04	05	06	07	08	09	
10	11	12	13	14	15	16	
17	18	19	20	21	22	23	
24	25	26	27	28	29	30	
31							

AUGUST

		01	02	03	04	05	06
07	08	09	10	11	12	13	
14	15	16	17	18	19	20	
21	22	23	24	25	26	27	
28	29	30	31				

SEPTEMBER

Mid-Autumn Festival

				01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER

National Day (Golden Week)

							01
02	03	04	05	06	07	08	
09	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						

NOVEMBER

				01	02	03	04	05
06	07	08	09	10	11	12		
13	14	15	16	17	18	19		
20	21	22	23	24	25	26		
27	28	29	30					

DECEMBER

							01	02	03
04	05	06	07	08	09	10			
11	12	13	14	15	16	17			
18	19	20	21	22	23	24			
25	26	27	28	29	30	31			

