

A general overview of the market situation as well as lead times and prices



Analog

High-End: Lead times on a high level, first signs of possible slight lead time reductions **Commodities:** Prices still partially increasing, first signs of possible lead time reductions

In General: • Extended reschedule and cancellation windows set on NCNR:

- for STM until end of CY2022 towards distribution
- for ONS rolling 180 days towards distribution



| | Lead Time (wk) | Price |
|-----------------------|----------------|----------|
| Switched Voltage Regs | ↔ 21-52 | ↑ |



| | Lead Time (wk) | Price |
|-----------------------|-------------------------|----------|
| Data Converters | \leftrightarrow 43-52 | ↑ |
| Interface | ↔ 43-52 | ↑ |
| Op Amps High End | ↔ 46-52 | ↑ |
| Switched Voltage Regs | ↔ 46-52 | ↑ |



| | Lead Time (wk |) Price |
|------------------|---------------|----------|
| Interface | ↔ 20-26 | ↑ |
| Op Amps High End | ↔ 22-52 | ↑ |

onsemi

| | Lead Time (wk) | Price |
|-----------------------|-------------------------|----------|
| Interface | ↔ 21-52 | ↑ |
| Op Amps Commodities | ↔ 21-52 | ↑ |
| Op Amps High End | \leftrightarrow 22-52 | ↑ |
| Switched Voltage Regs | ↔ 21-52 | ↑ |
| Voltage Regulators | ↔ 21-52 | 1 |



| | Lead Time (wk) | Price |
|-----------------------|----------------|----------|
| Data Converters | ↔ 21-52 | ↑ |
| Interface | ↔ 26-52 | ↑ |
| Op Amps Commodities | ↔ 21-52 | ↑ |
| Op Amps High End | ↔ 21-52 | 1 |
| Switched Voltage Regs | ↔ 21-52 | 1 |
| Voltage Regulators | ↔ 21-52 | 1 |



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Discretes

The Semiconductor market worldwide continues to be tight, the lead times are still on an elevated level but declining slightly in some areas. **STMicroelectronics** orders are NCNR until end of CY22, **onsemi** has a general NCNR window for rolling 180 days and **Nexperia** has an extended reschedule and cancellation window of 90 days for standard devices.

amu osram

| | Lead Time (wk) | Price |
|---------|-------------------------|-------------------|
| Sensors | \leftrightarrow 18-40 | \leftrightarrow |

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| | Lead Time (wk) | |
|------------|----------------|-------------------|
| RF Devices | ↔ 22-52 | \leftrightarrow |



| | Lead Time (wk) | Price |
|----------------|-------------------------|-------------------|
| Bi-polar Power | ↔ 45-52 | \leftrightarrow |
| IGBT | ↔ 26-52 | ↑ |
| Power MOSFETs | ↔ 31-52 | ↑ |
| Rectifiers | \leftrightarrow 20-52 | \leftrightarrow |
| RF Devices | ↔ 16-52 | \leftrightarrow |
| Sensors | \leftrightarrow 28-52 | \leftrightarrow |
| Small Signal | ↔ 41-52 | \leftrightarrow |
| Thyristors | ↔ 18-52 | \leftrightarrow |

nexperia

| | Lead Time (wk) | Price |
|----------------|-------------------------|-------------------|
| Bi-polar Power | ↔ 15-30 | \leftrightarrow |
| Power MOSFETs | \leftrightarrow 22-39 | ↑ |
| Small Signal | \leftrightarrow 12-30 | ↑ |
| TVS/Protection | \leftrightarrow 12-30 | \leftrightarrow |
| Zener Diodes | ↔ 10-29 | ↑ |



| | Lead Time (wk) | Price |
|------------|-------------------------|-------------------|
| RF Devices | \leftrightarrow 28-52 | \leftrightarrow |
| Sensors | ↔ 28-52 | \leftrightarrow |

onsemi

| | Lead Tir | me (wk) | Price |
|-----------------------------|-------------------|---------|----------|
| Bi-polar Power | \leftrightarrow | 30-52 | ↑ |
| IGBT | \leftrightarrow | 39-52 | ↑ |
| Power MOSFETs ^{x1} | \leftrightarrow | 32-52 | ↑ |
| Rectifiers | \leftrightarrow | 26-52 | ↑ |
| Small Signal | \leftrightarrow | 24-52 | ↑ |
| TVS/Protection | \leftrightarrow | 20-52 | ↑ |
| Zener Diodes ^{x1} | \leftrightarrow | 24-52 | ↑ |

x1 for AECQ applications please use the new Q-versions



| | Lead Time (wk) | Price |
|------------------------------|-------------------------|-------------------|
| Bi-polar Power | \leftrightarrow 24-30 | \leftrightarrow |
| IGBT | \leftrightarrow 46-52 | \leftrightarrow |
| Rectifiers | \leftrightarrow 45-52 | \leftrightarrow |
| Small Signal | \leftrightarrow 45-52 | \leftrightarrow |
| Thyristors | \leftrightarrow 36-52 | \leftrightarrow |
| TVS/Protection ^{x1} | \leftrightarrow 30-52 | \leftrightarrow |

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| | Lead Time (wk) | Price |
|---------------|----------------|-------------------|
| Power MOSFETs | ↔ 30-52 | \leftrightarrow |



| | Lead Time (wk) | Price |
|----------------|-------------------------|-------------------|
| Power MOSFETs | ↔ 24-52 | \leftrightarrow |
| Rectifiers | \leftrightarrow 22-52 | \leftrightarrow |
| Small Signal | \leftrightarrow 28-52 | \leftrightarrow |
| Thyristors | ↔ 26-52 | \leftrightarrow |
| TVS/Protection | \leftrightarrow 25-52 | \leftrightarrow |
| Zener Diodes | \leftrightarrow 22-52 | \leftrightarrow |



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Memory

ALL PRICE TENDENCIES ARE INDICATED IN USD

Please provide long-term demand on all technologies. Forecast/Order backlog is key for supply. **General situation:**

Price and lead time levels depend on product technology. Improving availabilities, pricing peaks past

DRAM: Supply improving, lead times stabilized

NAND Flash: Supply improving, lead times stabilized, supply constraints on specific suppliers **NOR Flash:** Supply constrained, Shanghai lockdown impacts supply, lead times stabilized

SRAM: Supply constraints on specific technologies & suppliers



| | Lead Time (wk) | | Price |
|------------------|----------------|-------|----------|
| Serial NOR Flash | 1 | 24-36 | ↑ |



| | Lead Time (wk) | Price |
|------|----------------|----------|
| FRAM | ↑ 24-30 | ↑ |



| | Lead Time (wk) | Price |
|----------------------------------|------------------|-------------------|
| FRAM | ↑ ↑ 44-52 | \leftrightarrow |
| nvSRAM | ↑ ↑ 44-52 | \leftrightarrow |
| Parallel NOR Flash ^{x1} | ↑↑ 36-42 | \leftrightarrow |
| Serial NOR Flash ^{x1} | ↑↑ 36-42 | \leftrightarrow |
| SRAM Asynch. | ↑ 24-36 | \leftrightarrow |
| SRAM Synch. | ↑ 24-36 | \leftrightarrow |

x1 Allocation



| | Lead Ti | me (wk) | Price |
|----------------------------------|-------------------|---------|-------------------|
| DDR/mobile DDR | \leftrightarrow | 12-24 | \leftrightarrow |
| DDR2/LPDDR2 | \leftrightarrow | 12-32 | \leftrightarrow |
| DDR3/DDR3L | \leftrightarrow | 16-40 | \leftrightarrow |
| DDR4/LPDDR4 | \leftrightarrow | 16-24 | \leftrightarrow |
| Managed NAND (eMMC, UFS)x1 | \leftrightarrow | 40 | \leftrightarrow |
| NAND (SLC,MLC,TLC,3D) | \leftrightarrow | 16-24 | \leftrightarrow |
| Parallel NOR Flash ^{x1} | \leftrightarrow | 14-18 | \leftrightarrow |
| SDRAM/mobile SDRAM | \leftrightarrow | 12-36 | \leftrightarrow |
| Serial NOR Flash ^{x1} | \leftrightarrow | 20-40 | \leftrightarrow |
| SRAM Asynch. | \leftrightarrow | 8-12 | \leftrightarrow |
| SRAM Synch. | \leftrightarrow | 8-12 | \leftrightarrow |

x1 Allocation

KIOXIA

| | Lead Time (wk) | Price |
|--------------------------|-----------------|-------------------|
| Managed NAND (eMMC, UFS) | ↔ 24-36 | ↑ |
| NAND (SLC,MLC,TLC,3D) | ↑↑ 20-52 | ↑ |
| SSD | ↔ 12-16 | \leftrightarrow |



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SRAM: Supply constraints on specific technologies & suppliers



| | Lead Time (wk) | Price |
|------------------|-----------------|----------|
| EEprom | ↑↑ 5-52 | ↑ |
| Eprom | ↑↑ 5-52 | ↑ |
| Serial NOR Flash | ↑↑ 24-28 | ^ |



| | Lead Time (| wk) Price |
|--------------------------|---------------|-----------|
| DDR/mobile DDR | ↔ 20-2 | 4 ↔ |
| DDR2/LPDDR2 | ↔ 20-2 | 4 ↔ |
| DDR3/DDR3L | ↔ 24-2 | 8 ↔ |
| DDR4/LPDDR4 | ↑ 24-2 | 8 ↔ |
| Managed NAND (eMMC, UFS) | ↑ 24-2 | 8 1 |
| microSD | ↔ 20-2 | 4 ↔ |
| NAND (SLC,MLC,TLC,3D) | ↑ 24-2 | 8 ↔ |
| Parallel NOR Flash | ↑ 52 | ↑ |
| SDRAM/mobile SDRAM | ↔ 20-2 | 4 ↔ |
| Serial NOR Flash | ↑ 52 | ↑ |
| SSD | ↔ 20-2 | 4 ↔ |

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| | Lead Time (wk) | | Price |
|------------------|----------------|-------|----------|
| EEprom | ↑ | 7-21 | ↑ |
| Serial NOR Flash | ^ | 16-20 | 1 |

RENESAS

| | Lead Time (wk) | | Price |
|----------------|-------------------|-------|-------------------|
| EEprom | \leftrightarrow | 8-12 | \leftrightarrow |
| FIFO | 1 | 16-20 | † |
| SRAM Asynch. | 1 | 20-24 | † |
| SRAM Multiport | 1 | 16-20 | 11 |
| SRAM Synch. | 1 | 20-24 | 11 |

SAMSUNG

| | Lead Time (wk) | | Price |
|--|-------------------|-------|-------------------|
| DDR3/DDR3Lx1 | 1 | 14-20 | \leftrightarrow |
| DDR4/LPDDR4×1 | \leftrightarrow | 10-12 | \leftrightarrow |
| Managed NAND (eMMC, UFS) ^{x1} | \leftrightarrow | 12-16 | \leftrightarrow |
| SSD ^{x1} | \leftrightarrow | 10-12 | \leftrightarrow |

x1 Allocation



| | Lead Time (wk) | Price |
|--------|----------------|-------------------|
| EEprom | ↑↑ 8-52 | 1 |
| NVRAM | ↑ 16-24 | \leftrightarrow |



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Opto

Partially falling trend on lead times.

ams OSRAM: Some LED product families are still on allocation. Partially price increases.

ONS: NCNR until end of CY2022

Osram DS: Very constraint supply on LED Drivers

am. osram

| | Lead Time (wk) | Price |
|--|----------------|-------------------|
| LED's High Power | ↔ 12-16 | \leftrightarrow |
| LEDs High Power General Lighting | ↓ 12-16 | \leftrightarrow |
| LEDs Infrared ^{x1} | ↔ 12-38 | \leftrightarrow |
| LEDs Low/Mid Power | ↔ 12-16 | \leftrightarrow |
| LEDs Low/Mid Power General Lighting | ↔ 10-12 | ↑ |

x1 SFH2500/ SFH4551: 40-50 weeks



| | Lead Ti | ne (wk) | Price |
|--|-------------------|---------|-------------------|
| LEDs High Power General Lighting | \leftrightarrow | 4-6 | \leftrightarrow |
| LEDs Low/Mid Power General Lighting | \leftrightarrow | 4-6 | \leftrightarrow |

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| | Lead Ti | me (wk) | Price |
|--------------------|-------------------|---------|-------------------|
| Coupler | ↑ | 18-52 | ↑ |
| LEDs High Power | \leftrightarrow | 10-30 | \leftrightarrow |
| LEDs Low/Mid Power | \leftrightarrow | 16-20 | \leftrightarrow |

EVERLIGHT

| | Lead Ti | me (wk) | Price |
|--------------------|-------------------|---------|-------------------|
| Coupler | ↑ | 18-30 | ↑ |
| LED's High Power | 1 | 8-26 | \leftrightarrow |
| LEDs Infrared | \leftrightarrow | 6-24 | \leftrightarrow |
| LEDs Low/Mid Power | \leftrightarrow | 22-24 | \leftrightarrow |
| LEDs Ultraviolet | \leftrightarrow | 6-20 | \leftrightarrow |

LEDil[®]

| | Lead Time (wk) | Price |
|-----------|----------------|----------|
| LED Optic | ↔ 6-8 | ^ |

ELUMINUS

| | Lead Tir | ne (wk) | Price |
|--|-------------------|---------|-------------------|
| LED's High Power | \leftrightarrow | 6-10 | \leftrightarrow |
| LEDs High Power General Lighting | \leftrightarrow | 6-8 | \leftrightarrow |
| LEDs Infrared | \leftrightarrow | 6-12 | \leftrightarrow |
| LEDs Low/Mid Power General Lighting | \leftrightarrow | 6-8 | \leftrightarrow |
| LEDs Ultraviolet | \leftrightarrow | 6-8 | \leftrightarrow |

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| | Lead Time (wk) | Price |
|---------|----------------|----------|
| Coupler | ↑ 12-52 | 1 |



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Osram DS: Very constraint supply on LED Drivers

OSRAM

| | Lead Time (wk) | Price |
|------------|----------------|----------|
| LED Driver | ↑↑ 20-40 | ↑ |
| LED Moduls | ↑ 16-18 | 1 |

RENESAS

| | Lead Time (wk) | Price |
|---------|----------------|------------|
| Coupler | ↑↑ 12-30 | 1 1 |

SAMSUNG

| | Lead Time (wk) | Price |
|--|-------------------------|-------------------|
| LED's High Power | \leftrightarrow 12-14 | \leftrightarrow |
| LEDs High Power General Lighting | ↔ 12-14 | \leftrightarrow |
| LEDs Low/Mid Power | \leftrightarrow 8-10 | \leftrightarrow |
| LEDs Low/Mid Power General Lighting | ↔ 8-10 | ↑ |

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| | Lead Time (wk) | Price |
|---------|----------------|----------|
| Coupler | ↑ 12-52 | ↑ |



| | Lead Time (wk) | Price |
|-----------------------------|-------------------------|-------------------|
| Coupler | ↑ 12-48 | ↑ |
| LED's High Power | ↔ 7-52 | \leftrightarrow |
| LEDs Infrared ^{x1} | ↔ 6-24 | \leftrightarrow |
| LEDs Low/Mid Power | \leftrightarrow 10-32 | \leftrightarrow |
| LEDs Ultraviolet | ↔ 6-20 | \leftrightarrow |

 $^{^{\}rm x1}$ 0805 SMD up to 35 weeks; IR receiver up to 18 weeks



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MCU & DSP

Microcontroller lead times are still at a very high level.

NXP is at 30-50 weeks, REN is at 30-34 weeks, STM still on allocation for several families.

Microchip: Lead time is further increasing and we do not see a recovery until end of 2022. We strongly recommend to check and update your PSP agreements to shorten lead time. Please highlight problems regarding EOL of AT89C51 to your Global Sales Service. **STM** changed the NCNR rules: NCNR until end of CY22.



| | Lead Time (wk) | Price |
|--------|----------------|----------|
| 8 Bit | ↑ 52-58 | ↑ |
| 16 Bit | ↑ 52-58 | ↑ |
| 32 Bit | ↑ 52-58 | ↑ |



| | Lead Time (wk) | Price |
|-----------|----------------|----------|
| 8 Bit AVR | ↓ 46-80 | ↑ |
| 8 Bit PIC | ↔ 52-62 | ↑ |
| 16 Bit | ↔ 17-75 | ↑ |
| 32 Bit | ↓ 45-81 | ↑ |



| | Lead Tim | e (wk) | Price |
|--------|----------|--------|----------|
| 8 Bit | ↑ | 30-50 | ↑ |
| 16 Bit | ↑ | 30-50 | ↑ |
| 32 Bit | ↑ | 30-50 | ↑ |
| i.MX | ↑ | 30-50 | ↑ |
| DSP | ^ | 30-50 | ↑ |



| | Lead Time (wk) | Price |
|------|----------------|----------|
| MCUs | ↑ 30-34 | ↑ |



| | Lead Time (wk) | Price |
|--------|----------------|----------|
| 8 Bit | ↑ 52 | 1 |
| 16 Bit | ↑ 52 | 1 |
| 32 Bit | ↑ 52 | 11 |



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Program. Logic

Xilinx: general price increase announced for November; Spartan 6 family will go on allocation. Backlog on NCNR.



| | Lead Time (wk) | Price |
|----------------|----------------|----------|
| Program. Logic | ↔ 31-77 | ↑ |



| | Lead Time (wk) | Price |
|----------------|----------------|----------|
| Program. Logic | ↑ 13-52 | 1 |



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| | Lead Time (wk) | Price |
|----------------|----------------|----------|
| Standard Logic | ↔ 22-49 | ↑ |

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| | Lead Time (wk) | Price |
|----------------|----------------|----------|
| Standard Logic | ↔ 30-52 | ↑ |

TOSHIBA

| | Lead Time (wk) | Price |
|----------------|----------------|-------------------|
| Standard Logic | ↔ 40-52 | \leftrightarrow |