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## Membership Service

<p>| Item                                  | Frequency | Silver | Gold | DRAM Platinum | DRAM Diamond | NAND Platinum | NAND Diamond | Memory Platinum | Memory Diamond |
|---------------------------------------|-----------|--------|------|---------------|--------------|---------------|--------------|----------------|----------------|---------------|
| Spot Price Early Notice               | Daily     | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| Historical Price Download             | Daily     | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| DRAM/NAND Contract Early Notice       | Monthly   | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| Server DIMM Contract Price            | Monthly   |        |      |               |              |               |              |                |                |               |
| Mobile Contract Prices Info.          | Quarterly |        |      |               |              |               |              |                |                |               |
| NAND Flash Wafer Spot Prices Info.    | Weekly    |        |      |               |              |               |              |                |                |               |
| NAND Flash Wafer Contract Prices Info.| Monthly   |        |      |               |              |               |              |                |                |               |
| WW SSD Street Price                   | Biweekly   |        |      |               |              |               |              |                |                |               |
| Enterprise SSD Contract Price         | Quarterly |        |      |               |              |               |              |                |                |               |
| FC-Client OEM SSD Contract Price      | Quarterly |        |      |               |              |               |              |                |                |               |
| Report                                | Quarterly | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| special Report                        | Aperiodically | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ |
| Datasheet                             |           |        |      |               |              |               |              |                |                |               |
| DRAM Platinum Datasheet               | Monthly   | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| NAND Platinum Datasheet               | Monthly   | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| DRAM Diamond Datasheet                | Quarterly | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| NAND Diamond Datasheet                | Quarterly | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| Server DRAM Datasheet                 | Quarterly |        |      |               |              |               |              |                |                |               |
| Server Diamond Datasheet              | Quarterly |        |      |               |              |               |              |                |                |               |
| Mobile Datasheet                      | Quarterly |        |      |               |              |               |              |                |                |               |
| Enterprise SSD Datasheet              | Quarterly |        |      |               |              |               |              |                |                |               |
| SSD Datasheet                         | Quarterly |        |      |               |              |               |              |                |                |               |
| Smartphone Market Decode Datasheet     | Quarterly |        |      |               |              |               |              |                |                |               |
| Foundry Datasheet                     | Quarterly |        |      |               |              |               |              |                |                |               |
| SLC Datasheet                         | Quarterly |        |      |               |              |               |              |                |                |               |
| Consumer DRAM Datasheet               | Quarterly |        |      |               |              |               |              |                |                |               |
| Other Service                         |           |        |      |               |              |               |              |                |                |               |
| Analyst Con. Call                     | Quarterly | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |
| Business Visiting                     | Arrange   | ◎      | ◎    | ◎             | ◎            | ◎             | ◎            | ◎              | ◎              | ◎             |</p>
<table>
<thead>
<tr>
<th>Membership Service</th>
<th>Single Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
<td><strong>Frequency</strong></td>
</tr>
<tr>
<td><strong>Price Information</strong></td>
<td></td>
</tr>
<tr>
<td>Spot Price Early Notice</td>
<td>Daily</td>
</tr>
<tr>
<td>Historical Price Download</td>
<td>Daily</td>
</tr>
<tr>
<td>DRAM/NAND Contract Early Notice</td>
<td>Monthly</td>
</tr>
<tr>
<td>Server DIMM Contract Price</td>
<td>Monthly</td>
</tr>
<tr>
<td>Mobile Contract Prices Info.</td>
<td>Quarterly</td>
</tr>
<tr>
<td>NAND Flash Wafer Spot Prices Info.</td>
<td>Weekly</td>
</tr>
<tr>
<td>NAND Flash Wafer Contract Prices Info.</td>
<td>Monthly</td>
</tr>
<tr>
<td>WW SSD Street Price</td>
<td>Biweekly</td>
</tr>
<tr>
<td>Enterprise SSD Contract Price</td>
<td>Quarterly</td>
</tr>
<tr>
<td>PC-Client OEM SSD Contract Price</td>
<td>Quarterly</td>
</tr>
<tr>
<td><strong>Report</strong></td>
<td></td>
</tr>
<tr>
<td>Research Report</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Special Report</td>
<td>Aperiodically</td>
</tr>
<tr>
<td>Datasheet</td>
<td></td>
</tr>
<tr>
<td>DRAM Platinum Datasheet</td>
<td>Monthly</td>
</tr>
<tr>
<td>NAND Platinum Datasheet</td>
<td>Monthly</td>
</tr>
<tr>
<td>DRAM Diamond Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>NAND Diamond Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Server DRAM Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Server Diamond Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Mobile Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Enterprise SSD Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SSD Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Smartphone Market Decode Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Foundry Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SLC Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Consumer DRAM Datasheet</td>
<td>Quarterly</td>
</tr>
<tr>
<td><strong>Other Service</strong></td>
<td></td>
</tr>
<tr>
<td>Analyst Con. Call</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Business Visiting</td>
<td>Arrange</td>
</tr>
</tbody>
</table>
## Membership Service

<table>
<thead>
<tr>
<th>Item</th>
<th>Frequency</th>
<th>Single Purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price Information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLCC Price Information-USD 2,500</td>
<td>Monthly</td>
<td>☎️</td>
</tr>
<tr>
<td><strong>Report</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLCC Market Bulletin-USD 3,500</td>
<td>Biweekly</td>
<td>☎️</td>
</tr>
<tr>
<td>Research Report-USD 4,000</td>
<td>Quarterly</td>
<td>☎️</td>
</tr>
<tr>
<td><strong>Datasheet</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLCC Datasheet-USD 3,500</td>
<td>Monthly</td>
<td>☎️</td>
</tr>
<tr>
<td><strong>Other Service</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyst Con. Call/Business Visiting</td>
<td>Scheduled (Quarterly)</td>
<td>☎️</td>
</tr>
</tbody>
</table>

| Price(USD) – Excluded Tax | 10,000 |

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MLCC Package

MLCC Package Service covers as below:

- **MLCC Price Information**
  TrendForce lists sizes, key commodity specs, and mainstream applications (smartphones, PCs/laptops, servers, gaming devices, and automotive electronics). Prices of MLCC products are constantly being tracked and updated on a monthly basis.
  (Publish time: The end of month)

- **MLCC Market Bulletin**
  TrendForce provides biweekly reports that update its members on the latest developments in the MLCC market and the price trend information.

- **MLCC Research Report**
  The report provides an analysis and explanation on the differences among MLCC suppliers with respect to the main data indicators as well as a forecast on the situation of the MLCC industry for the next quarter.

- **MLCC Datasheet**
  CapEx figures, production capacity figures, and inventory levels of MLCC suppliers are constantly being tracked and updated on a regular basis. TrendForce also provides analyses on the price trends and inventory statuses of production-related materials.
  (Publish time: The beginning of month)
Silver Membership

As Semiconductor Research Silver Membership, you are allowed to assess our services below:

- **DRAM/NAND Contract/Spot Price Information**

  Authorize to **download** price on DRAMeXchange Website Price Database, and:

  1. Download DRAM / NAND Flash daily spot prices or monthly contract prices from 2017 to current in excel format
  2. View DRAM / NAND Flash spot / contract price trend in chart format on a weekly, monthly, quarterly and yearly basis, or on customized basis
  3. Download DXI (Semiconductor Research Index) from 2020 to current in excel format
  4. Historical Daily Express - a quick look at daily DRAM / NAND Flash spot markets from Nov. 28th, 2003 to current
Silver Membership

- **DRAM/NAND Market View**
  An overall and latest updated on DRAM, NAND Flash, PC and SSD industry

- **DRAM/NAND Learning Center**
  Learning Center: an introduction of memory industry, separated into DRAM and NAND Flash.

- **Daily News Alert**
  Provides Silver members daily update of DRAM, NAND FLASH, PC, Memory Card, etc. semiconductor industry news

- **SSD Performance Test**
  View our result of performance test on different SSD products
Gold Membership

Gold membership is the value-added membership that advances from Silver membership, Gold membership will enjoy all Silver membership Package and other services as below:

- **DRAM/NAND Contract/Spot Price Download**
  Semiconductor Research offers DRAM/NAND Contract and Spot Prices download, and as members, you can view the latest price information on the website.

- **DRAM/NAND Flash Contract Price Early Notice**
  Semiconductor Research offers a monthly DRAM/NAND Flash contract price early notice. This notice provides the latest price information and send to members before our website is updated.  
(Publish time: The end of the month)
DRAM Platinum Membership

DRAM Platinum member will receive all data including Silver and Gold membership coverage. DRAM Platinum Service covers as below:

- **DRAM Monthly Datasheet**
  Semiconductor Research offers you a complete analysis on DRAM industry supply/demand sufficiency, cost analysis and price forecast.
  (Publish time: The mid of the month)

- **DRAM Quarterly Research Report**
  Semiconductor Research Research report covers DRAM production overview, shipment update and forecast, new product and technology roadmap, industry and pricing trend.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Analyst Consulting Service**
  Members could schedule quarterly conference call with Semiconductor Research Analysts.

- **Business Visiting**
  Meet Semiconductor Research Analysts by person! Schedule business visiting with Semiconductor Research Analysts.
DRAM Platinum Membership

DRAM Platinum Monthly Datasheet

DRAM Worldwide Supply Update
- DRAM Market Forecast
- DRAM Makers' Revenue
- DRAM Makers Quarterly Revenue Ranking
- DRAM Operating Margin By Each Vendors
- DRAM Makers' Capex
- DRAM Worldwide 12" Quarterly Wafer Starts
- DRAM Makers' Fab Capacity Breakdown by Brand
- DRAM Makers' Fab Capacity Breakdown by Fab
- DRAM Worldwide Monthly Production Summary
- DRAM Worldwide Monthly Production Breakdown by Type
- DRAM Worldwide Monthly Production Breakdown by Region
- DRAM Worldwide Process Ratio by Quarter
- Technology Breakdown by Company
- DRAM Makers' Quarterly Production Output Breakdown by Density

DRAM Worldwide Demand Update
- Worldwide Monthly Desktop Shipment
- Worldwide Monthly Notebook Shipment
- Worldwide Monthly PC Shipment
- Worldwide Quarterly Server & Workstation Shipment
- Worldwide Quarterly Graphics Shipment
- Worldwide Quarterly Handset Production Volume
- DRAM Content Per Box in DT, NB

DRAM Market Forecast
- DRAM Spot and Contract Prices Forecast by Month
- Worldwide DRAM Production Forecast
- DRAM Cost Structure Update

DRAM Supply v.s. Demand Sufficiency Analysis
- DRAM Supply v.s. Demand Sufficiency
- DRAM Supply and Demand Model

Worldwide Monthly PC Shipment
Worldwide Monthly Notebook Shipment
Worldwide Monthly Desktop Shipment
Worldwide Quarterly Server & Workstation Shipment
Worldwide Quarterly Graphics Shipment
Worldwide Quarterly Handset Production Volume
DRAM Content Per Box in DT, NB
DRAM Spot and Contract Prices Forecast by Month
Worldwide DRAM Production Forecast
DRAM Cost Structure Update
DRAM Supply v.s. Demand Sufficiency
DRAM Supply and Demand Model
DRAM Market Bulletin Membership – Additional purchase

Semiconductor Research offers an additional purchase which only applies to the above DRAM Platinum members, a comprehensive market update on the Contract, Spot and the DRAM market momentum.

We also provide our point of view on the instant hot topic analysis on the weekly basis.

*At least 40 publication reports in a year.

Additional fee:
USD 3,500/year

Language:
English / Chinese / Simple Chinese

Format:
PDF

Frequency:
Wednesday of the published week
NAND Flash Platinum Membership

NAND Flash Platinum member will receive all data including Silver and Gold membership coverage. NAND Flash Platinum Service covers as below:

- **NAND Flash Monthly Datasheet**
  Semiconductor Research offers you a complete analysis on NAND Flash industry supply/demand sufficiency, cost analysis and price forecast.
  (Publish time: The mid of the month)

- **NAND Flash Quarterly Research Report**
  Semiconductor Research Research report covers NAND Flash production overview, shipment update and forecast, new product and technology roadmap, industry and pricing trend.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Analyst Consulting Service**
  Members could schedule quarterly conference call with Semiconductor Research Analysts.

- **Business Visiting**
  Meet Semiconductor Research Analysts by person! Schedule business visiting with Semiconductor Research Analysts.
NAND Flash Platinum Membership

NAND Flash Platinum Monthly Datasheet

NAND Flash Market Financial update
Global NAND Flash Market Forecast
NAND Flash Makers' Revenue
Major NAND Flash Makers' Annual Capex Forecast
Major NAND Flash Makers' Quarterly OP Margin
Branded NAND Flash Makers' Quarterly Revenue Ranking

NAND Flash Worldwide Supply Update
NAND Flash Worldwide Wafer Start
Major NAND Flash Makers' Quarterly Capacity Breakdown by Fab
NAND Flash Monthly Worldwide Production Output
Major NAND Flash Makers' Annual Production Forecast
NAND Flash Production Output Breakdown by Region
Global NAND Flash Production Breakdown by Density Forecast
NAND Flash Production Breakdown by Type
NAND Flash Production Breakdown by Process Technology

NAND Flash Cost Analysis by Density
Mainstream NAND Flash Chip Cost Analysis & Forecast
NAND Flash Spot and Contract Prices Forecast

NAND Flash Worldwide Demand Update
NAND Flash Worldwide Demand Summary
NAND Flash Demand breakdown by Application
NAND Flash Worldwide Quarterly Consumption Summary
Worldwide Handset Quarterly Production Volume
Worldwide PC SSD Quarterly Shipments
Worldwide Enterprise SSD Quarterly Shipments
Worldwide Game Console Quarterly Shipments
Worldwide Tablet Quarterly Shipments
Worldwide USB Flash Drive Quarterly Shipments
Worldwide Memory Card Quarterly Shipments

Sufficiency Analysis
NAND Flash Supply vs Demand Sufficiency Ratio
Worldwide NAND Flash Market Supply/Demand Analysis & Forecast
Semiconductor Research offers an additional purchase which only applies to the above NAND Flash Platinum members, a comprehensive market update on the Contract, Spot and the NAND Flash market momentum. We also provide our point of view on the instant hot topic analysis on the weekly basis.  
*At least 40 publication reports in a year.

**Additional fee:**  
USD 3,500/year  
**Language:**  
English / Chinese / Simple Chinese  
**Format:**  
PDF  
**Frequency:**  
Wednesday of the published week
Memory Platinum Membership (DRAM & NAND Flash Package)

Memory Platinum member will receive all data including Silver and Gold membership coverage. Memory Platinum Service covers as below:

- **DRAM/NAND Flash Monthly Datasheet**  
  Semiconductor Research offers you a complete analysis on DRAM and NAND Flash industry supply/demand sufficiency, cost analysis and price forecast.  
  (Publish time: The mid of the month)

- **DRAM/NAND Flash Quarterly Research Report**  
  Semiconductor Research Research report covers DRAM/NAND Flash production overview, shipment update and forecast, new product and technology roadmap, industry and pricing trend.  
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Analyst Consulting Service**  
  Members could schedule quarterly conference call with Semiconductor Research Analysts.

- **Business Visiting**  
  Meet Semiconductor Research Analysts by person! Schedule business visiting with Semiconductor Research Analysts.
Memory Platinum Membership
(DRAM & NAND Flash Package)

DRAM Platinum Monthly Datasheet

DRAM Worldwide Supply Update
- DRAM Market Forecast
- DRAM Makers’ Revenue
- DRAM Makers Quarterly Revenue Ranking
- DRAM Operating Margin By Each Vendors
- DRAM Makers' Capex
- DRAM Worldwide 12" Quarterly Wafer Starts
- DRAM Makers' Fab Capacity Breakdown by Brand
- DRAM Makers' Fab Capacity Breakdown by Fab
- DRAM Worldwide Monthly Production Summary
- DRAM Worldwide Monthly Production Breakdown by Type
- DRAM Worldwide Monthly Production Breakdown by Region
- DRAM Worldwide Process Ratio by Quarter
- Technology Breakdown by Company
- DRAM Makers' Quarterly Production Output Breakdown by Density

DRAM Worldwide Demand Update
- Worldwide Monthly Desktop Shipment
- Worldwide Monthly Notebook Shipment
- Worldwide Monthly PC Shipment
- Worldwide Quarterly Server & Workstation Shipment
- Worldwide Quarterly Graphics Shipment
- Worldwide Quarterly Handset Production Volume
- DRAM Content Per Box in DT, NB

DRAM Market Forecast
- DRAM Spot and Contract Prices Forecast by Month
- Worldwide DRAM Production Forecast
- DRAM Cost Structure Update

DRAM Supply v.s. Demand Sufficiency Analysis
- DRAM Supply v.s. Demand Sufficiency
- DRAM Supply and Demand Model
Memory Platinum Membership
(DRAM & NAND Flash Package)

NAND Flash Platinum Monthly Datasheet

NAND Flash Market Financial update
Global NAND Flash Market Forecast
NAND Flash Makers’ Revenue
Major NAND Flash Makers’ Annual Capex Forecast
Major NAND Flash Makers’ Quarterly OP Margin
Branded NAND Flash Makers’ Quarterly Revenue Ranking

NAND Flash Worldwide Supply Update
NAND Flash Worldwide Wafer Start
Major NAND Flash Makers’ Quarterly Capacity Breakdown by Fab
NAND Flash Monthly Worldwide Production Output
Major NAND Flash Makers’ Annual Production Forecast
NAND Flash Production Output Breakdown by Region
Global NAND Flash Production Breakdown by Density Forecast
NAND Flash Production Breakdown by Type
NAND Flash Production Breakdown by Process Technology

NAND Flash Cost Analysis by Density
Mainstream NAND Flash Chip Cost Analysis & Forecast
NAND Flash Spot and Contract Prices Forecast

NAND Flash Worldwide Demand Update
NAND Flash Worldwide Demand Summary
NAND Flash Demand breakdown by Application
NAND Flash Worldwide Quarterly Consumption Summary
Worldwide Handset Quarterly Production Volume
Worldwide PC SSD Quarterly Shipments
Worldwide Enterprise SSD Quarterly Shipments
Worldwide Game Console Quarterly Shipments
Worldwide Tablet Quarterly Shipments
Worldwide USB Flash Drive Quarterly Shipments
Worldwide Memory Card Quarterly Shipments

Sufficiency Analysis
NAND Flash Supply vs Demand Sufficiency Ratio
Worldwide NAND Flash Market Supply/Demand Analysis & Forecast
DRAM Diamond Package
(DRAM Monthly & Quarterly Datasheet)

DRAM Diamond member will receive all data including DRAM Platinum membership coverage. DRAM Diamond Service covers as below:

- **DRAM Monthly Datasheet**
  Semiconductor Research offers you a complete analysis on DRAM industry supply/demand sufficiency, cost analysis and price forecast.
  (Publish time: The mid of the month)

- **DRAM Quarterly Datasheet**
  Semiconductor Research Offers you a complete analysis on DRAM industry wafer input, production output, technology node...etc. by each company.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **DRAM Quarterly Research Report**
  Semiconductor Research Research report covers DRAM production overview, shipment update and forecast, new product and technology roadmap, industry and pricing trend.
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- **Analyst Consulting Service**
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- **Business Visiting**
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DRAM Diamond Package
(DRAM Monthly & Quarterly Datasheet)

DRAM Platinum Monthly Datasheet

DRAM Worldwide Supply Update
- DRAM Market Forecast
- DRAM Makers’ Revenue
- DRAM Makers Quarterly Revenue Ranking
- DRAM Operating Margin By Each Vendors
- DRAM Makers’ Capex
- DRAM Worldwide 12" Quarterly Wafer Starts
- DRAM Makers' Fab Capacity Breakdown by Brand
- DRAM Makers' Fab Capacity Breakdown by Fab
- DRAM Worldwide Monthly Production Summary
- DRAM Worldwide Monthly Production Breakdown by Type
- DRAM Worldwide Monthly Production Breakdown by Region
- DRAM Worldwide Process Ratio by Quarter
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- DRAM Makers’ Quarterly Production Output Breakdown by Density

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- Worldwide Monthly Desktop Shipment
- Worldwide Monthly Notebook Shipment
- Worldwide Monthly PC Shipment
- Worldwide Quarterly Server & Workstation Shipment
- Worldwide Quarterly Graphics Shipment
- Worldwide Quarterly Handset Production Volume
- DRAM Content Per Box in DT, NB

DRAM Market Forecast
- DRAM Spot and Contract Prices Forecast by Month
- Worldwide DRAM Production Forecast
- DRAM Cost Structure Update

DRAM Supply v.s. Demand Sufficiency Analysis
- DRAM Supply v.s. Demand Sufficiency
- DRAM Supply and Demand Model

Technology Breakdown by Company

DRAM Spot and Contract Prices Forecast by Month

Worldwide DRAM Production Forecast

DRAM Cost Structure Update

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DRAM Diamond Quarterly Datasheet

- **DRAM Fab Capacity Update**
  - DRAM Makers' Capex
  - DRAM Makers' Quarterly DRAM Revenue
  - DRAM Makers' Quarterly Revenue Ranking
  - DRAM Makers' Capacity Breakdown by Brand
  - DRAM Makers' Capacity Breakdown by Fab
  - DRAM Makers' Output by Brand
  - DRAM Makers' Output by Fab
  - Samsung DRAM Fabs' Capacity/Output by Design Rule
  - SK hynix DRAM Fabs' Capacity/Output by Design Rule
  - Micron DRAM Fabs' Capacity/Output by Design Rule
  - Powerchip DRAM Fabs' Capacity/Output by Design Rule
  - Nanya DRAM Fabs' Capacity/Output by Design Rule
  - Winbond DRAM Fabs' Capacity/Output by Design Rule
  - JHICC DRAM Fabs' Capacity/Output by Design Rule
  - CXMT DRAM Fabs' Capacity/Output by Design Rule

- **DRAM Production Output Update**
  - Technology Breakdown by Company
  - DRAM Makers' Production Output Breakdown by Density
  - Density Production Output Breakdown by DRAM Maker
  - DRAM Makers' Production Output by Type
  - Samsung DRAM Production Output by Type
  - SK hynix DRAM Production Output by Type
  - Micron DRAM Production Output by Type
  - Nanya DRAM Production Output by Type
  - Powerchip DRAM Production Output by Type
  - Winbond DRAM Production Output by Type
  - JHICC DRAM Production Output by Type
  - CXMT DRAM Production Output by Type

- **Prices Forecast**
  - Spot and Contract Prices Forecast by Quarter
NAND Flash Diamond Package (NAND Flash Monthly & Quarterly Datasheet)

NAND Flash Diamond member will receive all data including NAND Flash Platinum membership coverage. NAND Flash Diamond Service covers as below:

- **NAND Flash Monthly Datasheet**
  Semiconductor Research offers you a complete analysis on NAND Flash industry supply/demand sufficiency, cost analysis and price forecast.
  (Publish time: The mid of the month)

- **NAND Flash Quarterly Datasheet**
  Semiconductor Research offers you a complete analysis on NAND Flash industry wafer input, production output, technology node...etc. by each company.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **NAND Flash Quarterly Research Report**
  Semiconductor Research Research report covers NAND Flash production overview, shipment update and forecast, new product and technology roadmap, industry and pricing trend.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Analyst Consulting Service**
  Members could schedule quarterly conference call with Semiconductor Research Analysts.

- **Business Visiting**
  Meet Semiconductor Research Analysts by person! Schedule business visiting with Semiconductor Research Analysts.
NAND Flash Diamond Package
(NAND Flash Monthly & Quarterly Datasheet)

NAND Flash Platinum Monthly Datasheet

NAND Flash Market Financial update
Global NAND Flash Market Forecast
NAND Flash Makers' Revenue
Major NAND Flash Makers' Annual Capex Forecast
Major NAND Flash Makers' Quarterly OP Margin
Branded NAND Flash Makers' Quarterly Revenue Ranking

NAND Flash Worldwide Supply Update
NAND Flash Worldwide Wafer Start
Major NAND Flash Makers' Quarterly Capacity Breakdown by Fab
NAND Flash Monthly Worldwide Production Output
Major NAND Flash Makers' Annual Production Forecast
NAND Flash Production Output Breakdown by Region
Global NAND Flash Production Breakdown by Density Forecast
NAND Flash Production Breakdown by Type
NAND Flash Production Breakdown by Process Technology

NAND Flash Cost Analysis by Density
Mainstream NAND Flash Chip Cost Analysis & Forecast
NAND Flash Spot and Contract Prices Forecast

NAND Flash Worldwide Demand Update
NAND Flash Worldwide Demand Summary
NAND Flash Demand breakdown by Application
NAND Flash Worldwide Quarterly Consumption Summary
Worldwide Handset Quarterly Production Volume
Worldwide PC SSD Quarterly Shipments
Worldwide Enterprise SSD Quarterly Shipments
Worldwide Game Console Quarterly Shipments
Worldwide Tablet Quarterly Shipments
Worldwide USB Flash Drive Quarterly Shipments
Worldwide Memory Card Quarterly Shipments

Sufficiency Analysis
NAND Flash Supply vs Demand Sufficiency Ratio
Worldwide NAND Flash Market Supply/Demand Analysis & Forecast
NAND Flash Diamond Package
(NAND Flash Monthly & Quarterly Datasheet)

NAND Flash Diamond Quarterly Datasheet

Wafer Output Breakdown Analysis
Major NAND Flash Makers' Capacity Breakdown by Fab
Worldwide Annual NAND Flash Capacity Forecasts

NAND Flash Fab Capacity Update
Forecast of NAND Flash Makers' Output Breakdown by Type & Density
Forecast of Samsung's Capacity / Output Breakdown by Fab
Forecast of KIOXIA/WD's Capacity / Output Breakdown by Fab
Forecast of SK hynix's Capacity / Output Breakdown by Fab
Forecast of Micron's Capacity / Output Breakdown by Fab
Forecast of Intel's Capacity / Output Breakdown by Fab
Forecast of YMTC's Capacity / Output Breakdown by Fab

NAND Flash Fab Production Output Update
Forecast of NAND Flash Makers' Output Breakdown by Type & Density
Forecast of Samsung's NAND Flash Output Breakdown by Type & Density
Forecast of KIOXIA/WD's Output Breakdown by Type & Density
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Forecast of Micron's Output Breakdown by Type & Density
Forecast of Intel's Output Breakdown by Type & Density
Forecast of YMTC's Output Breakdown by Type & Density

Production Breakdown Analysis
Global NAND Flash Production Breakdown by Makers
NAND Flash Makers' Production Breakdown by Node Technology
Samsung's Production Breakdown by Node Technology
KIOXIA/WD's Production Breakdown by Node Technology
SK hynix's Production Breakdown by Node Technology
Micron's Production Breakdown by Node Technology
Intel's Production Breakdown by Node Technology
PSC's Production Breakdown by Node Technology
Winbond's Production Breakdown by Node Technology
MXIC's Production Breakdown by Node Technology
YMTC's Production Breakdown by Node Technology
SMIC's Production Breakdown by Node Technology

NAND Flash Makers' Production Breakdown by Architecture Type
Samsung's Production Breakdown by Architecture Type
KIOXIA/WD's Production Breakdown by Architecture Type
SK hynix's Production Breakdown by Architecture Type
Micron's Production Breakdown by Architecture Type
Intel's Production Breakdown by Architecture Type
PSC's Production Breakdown by Architecture Type
Winbond's Production Breakdown by Architecture Type
MXIC's Production Breakdown by Architecture Type
YMTC's Production Breakdown by Architecture Type
SMIC's Production Breakdown by Architecture Type
Memory Diamond Package
(DRAM & NAND Flash Monthly & Quarterly Datasheet)

Memory Diamond member will receive all data including Memory Platinum membership coverage. Memory Diamond Service covers as below:

- **DRAM/NAND Flash Monthly Datasheet**
  Semiconductor Research offers you a complete analysis on DRAM and NAND Flash industry supply/demand sufficiency, cost analysis and price forecast.
  (Publish time: The mid of the month)

- **DRAM/NAND Flash Quarterly Datasheet**
  Semiconductor Research Offers you a complete analysis on DRAM/NAND Flash industry wafer input, production output, technology node...etc. by each company.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **DRAM/NAND Flash Quarterly Research Report**
  Semiconductor Research Research report covers DRAM/NAND Flash production overview, shipment update and forecast, new product and technology roadmap, industry and pricing trend.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Analyst Consulting Service**
  Members could schedule quarterly conference call with Semiconductor Research Analysts.

- **Business Visiting**
  Meet Semiconductor Research Analysts by person! Schedule business visiting with Semiconductor Research Analysts.
Memory Diamond Package
(DRAM & NAND Flash Monthly & Quarterly Datasheet)

DRAM Platinum Monthly Datasheet

DRAM Worldwide Supply Update
DRAM Market Forecast
DRAM Makers’ Revenue
DRAM Makers Quarterly Revenue Ranking
DRAM Operating Margin By Each Vendors
DRAM Makers’ Capex
DRAM Worldwide 12” Quarterly Wafer Starts
DRAM Makers’ Fab Capacity Breakdown by Brand
DRAM Makers’ Fab Capacity Breakdown by Fab
DRAM Worldwide Monthly Production Summary
DRAM Worldwide Monthly Production Breakdown by Type
DRAM Worldwide Monthly Production Breakdown by Region
DRAM Worldwide Process Ratio by Quarter
Technology Breakdown by Company
DRAM Makers’ Quarterly Production Output Breakdown by Density

DRAM Worldwide Demand Update
Worldwide Monthly Desktop Shipment
Worldwide Monthly Notebook Shipment
Worldwide Monthly PC Shipment
Worldwide Quarterly Server & Workstation Shipment
Worldwide Quarterly Graphics Shipment
Worldwide Quarterly Handset Production Volume
DRAM Content Per Box in DT, NB

DRAM Market Forecast
DRAM Spot and Contract Prices Forecast by Month
Worldwide DRAM Production Forecast
DRAM Cost Structure Update

DRAM Supply v.s. Demand Sufficiency Analysis
DRAM Supply v.s. Demand Sufficiency
DRAM Supply and Demand Model
Memory Diamond Package
(DRAM & NAND Flash Monthly & Quarterly Datasheet)

NAND Flash Platinum Monthly Datasheet

- NAND Flash Market Financial update
- Global NAND Flash Market Forecast
- NAND Flash Makers' Revenue
- Major NAND Flash Makers' Annual Capex Forecast
- Major NAND Flash Makers' Quarterly OP Margin
- Branded NAND Flash Makers' Quarterly Revenue Ranking

- NAND Flash Worldwide Supply Update
- NAND Flash Worldwide Wafer Start
- Major NAND Flash Makers' Quarterly Capacity Breakdown by Fab
- NAND Flash Monthly Worldwide Production Output
- Major NAND Flash Makers' Annual Production Forecast
- NAND Flash Production Output Breakdown by Region
- Global NAND Flash Production Breakdown by Density Forecast
- NAND Flash Production Breakdown by Type
- NAND Flash Production Breakdown by Process Technology

- NAND Flash Cost Analysis by Density
- Mainstream NAND Flash Chip Cost Analysis & Forecast
- NAND Flash Spot and Contract Prices Forecast

- NAND Flash Worldwide Demand Update
- NAND Flash Worldwide Demand Summary
- NAND Flash Demand breakdown by Application
- NAND Flash Worldwide Quarterly Consumption Summary
- Worldwide Handset Quarterly Production Volume
- Worldwide PC SSD Quarterly Shipments
- Worldwide Enterprise SSD Quarterly Shipments
- Worldwide Game Console Quarterly Shipments
- Worldwide Tablet Quarterly Shipments
- Worldwide USB Flash Drive Quarterly Shipments
- Worldwide Memory Card Quarterly Shipments

- Sufficiency Analysis
- NAND Flash Supply vs Demand Sufficiency Ratio
- Worldwide NAND Flash Market Supply/Demand Analysis & Forecast
DRAM Diamond Quarterly Datasheet

DRAM Fab Capacity Update
DRAM Makers' Capex
DRAM Makers' Quarterly DRAM Revenue
DRAM Makers' Quarterly Revenue Ranking
DRAM Makers' Capacity Breakdown by Brand
DRAM Makers' Capacity Breakdown by Fab
DRAM Makers' Output by Brand
DRAM Makers' Output by Fab
Samsung DRAM Fabs' Capacity/Output by Design Rule
SK hynix DRAM Fabs' Capacity/Output by Design Rule
Micron DRAM Fabs' Capacity/Output by Design Rule
Powerchip DRAM Fabs' Capacity/Output by Design Rule
Nanya DRAM Fabs' Capacity/Output by Design Rule
Winbond DRAM Fabs' Capacity/Output by Design Rule
JHICC DRAM Fabs' Capacity/Output by Design Rule
CXMT DRAM Fabs' Capacity/Output by Design Rule

DRAM Production Output Update
Technology Breakdown by Company
DRAM Makers' Production Output Breakdown by Density
Density Production Output Breakdown by DRAM Maker
DRAM Makers' Production Output by Type
Samsung DRAM Production Output by Type
SK hynix DRAM Production Output by Type
Micron DRAM Production Output by Type
Nanya DRAM Production Output by Type
Powerchip DRAM Production Output by Type
Winbond DRAM Production Output by Type
JHICC DRAM Production Output by Type
CXMT DRAM Production Output by Type

Prices Forecast
Spot and Contract Prices Forecast by Quarter
Memory Diamond Package
(DRAM & NAND Flash Monthly & Quarterly Datasheet)

NAND Flash Diamond Quarterly Datasheet

Wafer Output Breakdown Analysis
Major NAND Flash Makers’ Capacity Breakdown by Fab
Worldwide Annual NAND Flash Capacity Forecasts

Production Breakdown Analysis
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Samsung’s Production Breakdown by Node Technology
KIOXIA/WD’s Production Breakdown by Node Technology
SK hynix’s Production Breakdown by Node Technology
Micron’s Production Breakdown by Node Technology
Intel’s Production Breakdown by Node Technology
PSC’s Production Breakdown by Node Technology
Winbond’s Production Breakdown by Node Technology
MXIC’s Production Breakdown by Node Technology
YMTC’s Production Breakdown by Node Technology
SMIC’s Production Breakdown by Node Technology

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Forecast of Intel’s Output Breakdown by Type & Density
Forecast of YMTC’s Output Breakdown by Type & Density

Forecast of Samsung’s NAND Flash Output Breakdown by Type & Density
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Forecast of YMTC’s Output Breakdown by Type & Density

Forecast of Winbond’s Output Breakdown by Type & Density
Forecast of MXIC’s Output Breakdown by Type & Density
Forecast of YMTC’s Output Breakdown by Type & Density
Forecast of SMIC’s Output Breakdown by Type & Density

Forecast of Samsung’s Production Breakdown by Fab
Forecast of KIOXIA/WD’s Production Breakdown by Fab
Forecast of SK hynix’s Production Breakdown by Fab
Forecast of Micron’s Production Breakdown by Fab
Forecast of Intel’s Production Breakdown by Fab
Forecast of YMTC’s Production Breakdown by Fab
NAND Flash Wafer Price

Starting from Q4 of 2015, Semiconductor Research will begin to cover the contract prices for TLC-Wafers and starting from Q2 of 2016, we will also begin to cover the contract prices for MLC-Wafers, which will be negotiated on a monthly basis between the NAND Flash industry’s suppliers and module makers. We will be providing updates each month to ensure members receive the most accurate and timely information.

*TLC wafer spot price had been published since 2019/01/14. We do ensure members receive the most accurate and timely information.

NAND Flash Wafer Price Service covers as below:

- **TLC Wafer Spot Price (Weekly updated)**
  - Normal member has a week lag relatively
- **Wafer Contract Price (Monthly updated)**

<table>
<thead>
<tr>
<th>TLC Wafer Spot Price</th>
<th>Weekly High</th>
<th>Weekly Low</th>
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<th>Session Low</th>
<th>Session Average</th>
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Mobile Package

Mobile Package Service covers as below:

- **Mobile Contract Price Update**
  Mobile DRAM Contract Price Quarterly Update; eMMC/UFS Contract Price Quarterly Update.
  (Publish time: The end of Jan., Apr., July, Oct.)

- **Mobile Quarterly Datasheet**
  Quarterly Mobile DRAM and Mobile NAND Flash latest market supply/demand update.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Mobile DRAM Quarterly Research Report**
  (Publish time: The end of Feb., May, Aug., Nov.)
Mobile Package

Mobile Quarterly Datasheet

Mobile DRAM
DRAM Worldwide Supply Update
DRAM Makers’ DRAM Revenue & Mobile DRAM Revenue
DRAM Makers Quarterly Mobile DRAM Revenue Ranking
Mobile DRAM Quarterly Product Mix on Output
Mobile DRAM Quarterly Output
Mobile DRAM Output by Product (Package)
Mobile DRAM Output by Product (Generation)
Mobile DRAM Output by Product (Density)
Mobile DRAM Technology Breakdown by Company

DRAM Worldwide Demand Update
Mobile DRAM Demand - Application Production Volume
Mobile DRAM Demand - Application Content
Mobile DRAM Demand - WW Smartphone Production Volume
Mobile DRAM Demand - China Smartphone Production Volume
Worldwide Top 10 Branded Smartphone Production Volume

DRAM Market Forecast
Mobile DRAM Price Forecast

DRAM Supply v.s. Demand Sufficiency Analysis
Worldwide Mobile DRAM Market Supply/Demand Analysis & Forecast

Mobile NAND Flash
eMMC Market Status
Architecture Breakdown
Interface Breakdown
eMMC/UFS Market Revenue Review and Forecast
MLC-eMMC & UFS Average Selling Price
eMMC Shipment
eMMC Application
eMMC & UFS Consumption by Application
eMMC & UFS Consumption by Density
Smartphone in eMMC/UFS
Media Tablet in eMMC/UFS
Smart TV in eMMC
E-Reader in eMMC
Smartphone Market Decode

Smartphone Market Decode covers as below:

- **Smartphone Market Quarterly Datasheet**

- **Smartphone Market Quarterly Research Report**
  
  TrendForce, a global market intelligence firm for the technology sectors, proudly presents “Smartphone Market Decode” – a quarterly research report that synergizes the resources of several in-house analyst teams such as the Department of Semiconductor Research, the Department of Display Research, the Department of ICT Application Research, etc.

  In addition to the first-hand data on the device production figures of the major electronics brands and the latest overview of the supply chains for the key components, Smartphone Market Decode also covers the relevant topics pertaining to technological innovations and development trends. The report assists enterprises in adapting to the rapidly changing market environment by providing the most real-time and professional industry knowledge that can be used to make the best operational decisions.

Mobile Device Worldwide Demand Update
WW Handset Production Volume
WW Branded Smartphone Production Volume
Chinese Branded Smartphone Production Volume
WW Top 10 Branded Smartphone Production Volume
Server DRAM Package

Server DRAM Package Service covers as below:

- **Server DIMM Monthly Contract Price**
  (Publish time: The end of the month)

- **Server DRAM Quarterly Datasheet**
  Quarterly Server DRAM latest market revenue/output update.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Server DRAM Quarterly Research Report**
  Current Server DRAM industry analysis on quarterly updated basis.
  Last quarter Server DRAM market status overview and summary on quarterly updated basis.
  (Publish time: The end of Feb., May, Aug., Nov.)

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### Server DRAM

**DRAM Worldwide Supply Update**

**DRAM Makers’ DRAM Revenue & Server DRAM Revenue**

**DRAM Makers Quarterly Server DRAM Revenue Ranking**

**Server DRAM Quarterly Product Mix on Output**

**Server DRAM Quarterly Output Shipment**

**Server DRAM Output by Product (Package)**

**Server DRAM Output by Product (Generation)**

**Server DRAM Output by Product (Density)**

**Server DRAM Technology Breakdown by Company**

**Server Demand- Server Unit Shipment by Brand**

**Server DRAM Price Forecast**

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Last update: 2023/03/31
Server Diamond Datasheet covers as below:

- **Server Diamond Quarterly Datasheet**
  TrendForce combines its expertise in the memory market and leverages it to provide a multifaceted study of the server market in this report. The content of it is as follows:

  (1) Server CPU Market: State of Competition and Market Shares
  (2) Server Procurement by Cloud Service Providers in North America and China
  (3) Projection on Shipments of Server Storage Products
  (4) Projection on Server Shipments for Current Year
  (5) Major ODM Partners of Critical Server Brands
  (6) Changes on Volumes in Server DRAM Procurement
  (7) Trends in SSD Procurement and Projections on Storage Form-Factors and Interfaces
  (8) Shares of Enterprise and Hyperscale Servers in Memory Consumption.

(Publish time: The end of Mar., June, Sep., Dec.)

**Membership fee:**
- Single Purchase at USD 35,000/year
- Additional fee at USD 21,000/year
  (Upgrade from the Server DRAM Package)

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**CPU**
- Intel Server/Workstation CPU Units Shipment
- AMD Server/Workstation CPU Units Shipment

**Hyperscale Data Center Portfolio**
- Storage Server Shipment
- Hyperscale Server Units
- Hyperscale Server CPU Usage Mix
- Hyperscale Server Barebone (L6) Portion (%)
- China Hyperscale Server Set (L10) Portion (%)
- Hyperscale RDIMM Consumption
- Hyperscale SSD Consumption
- ESSD Form Factor Breakdown
- ESSD Interface Breakdown
- Server DRAM & SSD Consumption Mix
Enterprise SSD Package

Enterprise SSD Package Service covers as below:

- **Enterprise SSD Contract Price**
  The Enterprise SSD contract prices are covering North America, Japan, Europe, and other markets and generally derived from the quarterly negotiations between enterprise SSD markets.
  (Publish time: The end of Jan., Apr., July, Oct.)

- **Enterprise SSD Quarterly Datasheet**
  Enterprise SSD Datasheet provides you with the latest SSD density and shipment forecast for server equipment and data centers. Also, enterprise SSD interface, form factor breakdown, and read / mixed read / write load / write intensify Enterprise SSD breakdown.
  (Publish time: The end of Feb., May, Aug., Nov.)

<table>
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<tr>
<th>Enterprise SSD Contract Price Update (Unit: USD)</th>
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<td>7680GB</td>
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</table>

Enterprise SSD

- Enterprise SSD Revenue
- Enterprise SSD ASP
- Worldwide Enterprise SSD Shipment
- Worldwide Enterprise SSD Shipment by brand
- Enterprise SSD Contract Price Forecast
- Enterprise SSD Architecture Breakdown
- Enterprise SSD Interface Breakdown
- Worldwide Enterprise SSD Capacity Breakdown by Capacity
- Price Crossover Point for Enterprise HDD and Enterprise SSD-SATA
- Price Crossover Point for Enterprise HDD and Enterprise SSD-SAS
- SSD Shipment Breakdown by Type
- SSD Revenue Breakdown by Type
- NAND Flash Demand Portion
SSD Package

SSD Package Service covers as below:

- **WW SSD Street Price**
  WW SSD Street Price collected by diverse brands and densities in major markets, including NA, Japan and EU.
  
  *(Publish time: The end of biweekly of the month)*

- **PC-Client OEM SSD Contract Price**
  The worldwide PC-Client OEM SSD contract prices are generally derived from the quarterly negotiations between SSD suppliers and top tier OEM/ODMs.

  *(Publish time: The end of Jan., Apr., July, Oct.)*

- **SSD Quarterly Datasheet**
  SSD Datasheet provides you with latest SSD density and shipment forecast in PC, server, disk on module and MID market.

  *(Publish time: The end of Feb., May, Aug., Nov.)*

SLC NAND Flash Datasheet

SLC NAND Flash Datasheet Service covers as below:

- **SLC NAND Flash Quarterly Datasheet**
  
  Besides the mainstream market segments, Semiconductor Research also provides price and supply/demand analyses for SLC solutions that belong to the more niche area of the NAND Flash market.

  **NAND Flash Market Financial Update**
  **NAND Flash SLC Revenue Forecast**

- **NAND Flash Worldwide Supply Update**
  
  Global NAND Flash SLC Production Breakdown by Density Forecast
  Major SLC NAND Flash Makers' Quarterly Capacity Breakdown by Company
  Major SLC NAND Flash Makers' Annual Production Forecast
  Samsung's Production Breakdown by Density
  SK hynix's Production Breakdown by Density
  Kioxia's Production Breakdown by Density
  Micron's Production Breakdown by Density
  Winbond's Production Breakdown by Density
  Macronix's Production Breakdown by Density
  Powerchip's Production Breakdown by Density
  SMIC's Production Breakdown by Density

  **NAND Flash Cost Analysis by Density**
  **NAND Flash SLC Contract Prices Forecast**

**Frequency:**
Quarterly (Mar., Jun., Sep. and Dec.)
Consumer DRAM Datasheet

Consumer DRAM Datasheet Service covers as below:

- **Consumer DRAM Quarterly Datasheet**

  Besides the mainstream product segments of the DRAM market, Semiconductor Research’s research now encompasses specialty (consumer) DRAM products as well.Analyses in this area pertain to product development plans and production outputs of suppliers, price trends, etc.

**Consumer DRAM Worldwide Supply Update**
- Key Trends of Consumer DRAM Market
- Consumer DRAM Production Breakdown by Type Forecast
- Consumer DRAM Production Breakdown by Density Forecast
- Consumer DRAM Makers’ Quarterly Capacity Breakdown by Company
- Consumer DRAM Makers’ Annual Production Forecast
- Samsung Consumer DRAM Production Output by Type
- SK hynix Consumer DRAM Production Output by Type
- Micron Consumer DRAM Production Output by Type
- Nanya Consumer DRAM Production Output by Type
- Powerchip Consumer DRAM Production Output by Type
- Winbond Consumer DRAM Production Output by Type
- JHICC Consumer DRAM Production Output by Type
- CXMT Consumer DRAM Production Output by Type

**Consumer DRAM Cost Analysis by Density**
- Specialty DRAM Contract Prices Forecast

**Frequency:**
- Quarterly (Jan., Apr., Jul. and Oct.)
Foundry Project Service covers as below:

- **Foundry Project Quarterly Datasheet**
  The industry’s latest market revenue updates, capacity utilization rates, and technological developments. Including the world’s major regions (China, US, Taiwan, Korea, Japan, etc.) and leading wafer manufacturers (including, but not limited to: TSMC, UMC, Samsung and SMIC etc.). Also provides you major foundry client’s wafer input in advanced technology process.
  (Publish time: The end of Feb., May, Aug., Nov.)

- **Market Bulletin Report**
  We will provide an update on each wafer manufacturers status on the biweekly basis.
  (Publish time: Monday of the published week)

- **Special Report**
  First-hand information for un-expecting issue and our point of view on the market news update.

- **Analyst Consulting Service**
  Members could schedule quarterly conference call with Semiconductor Research Analysts.

- **Business Visiting**
  Meet Semiconductor Research Analysts by person! Schedule business visiting with Semiconductor Research Analysts.
Foundry Project

- Foundry Project Quarterly Datasheet - (Publish time: The end of Feb, May, Aug, Nov)

**Foundry**

- Worldwide Market Update
- Foundry Revenue
- Quarterly Foundry Revenue Ranking
- Foundry Makers' CAPEX 2018-2021
- Foundry Makers' OP Margin
- Foundry Makers' Wafer ASP
- Foundry Main Customers' Wafer Input by Tech. Node
- Foundry Makers' Revenue by Application
- Foundry Makers' Revenue by Product

**Fab Capacity Update**

- TSMC's Fab Capacity breakdown
- UMC's Fab Capacity breakdown
- VIS's Fab Capacity breakdown
- PSMC's Fab Capacity breakdown
- SMIC's Fab Capacity breakdown
- HuaHong Group's Fab Capacity breakdown
- Samsung's Fab Capacity breakdown
- Foundry Makers' Installed Capacity
- Foundry Makers' Utilization Rate
## Foundry Project

- Foundry Project Quarterly Datasheet - Installed Capacity

### Foundry Makers' Installed Capacity

<table>
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## Foundry Project Quarterly Datasheet - Demand-Foundry Main Customer

### Foundry Main Customers' Wafer Input by Tech. Node

<table>
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<th>Main Customers’ monthly wafer input by technology node (K units)</th>
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<td>Apple</td>
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<td>MediaTek</td>
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<td>Intel</td>
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<td>Total</td>
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<td>UTIR %</td>
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<td>Qualcomm</td>
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Foundry Project

- Market Bulletin Report

  We will provide an update on each wafer manufacturers status on the biweekly basis.

  *At least 20 publication reports in a year.

Language:
- English / Chinese / Simple Chinese

Format:
- PDF

Frequency:
- Monday of the published week
Foundry Project

● Special Report

First-hand information for un-expecting issue and our point of view on the market news update.
China's Semiconductor Development Report

China's Semiconductor Development Report covers as below:

- **Research Report**
  
  The analysis for Chinese makers capacity on the DRAM and NAND Flash markets, and their technology development status on the DRAM and NAND Flash industry.

  *(Publish time: Semi-annual; The end of Mar., Sep.)*
Nor Flash Special Report

Analysis of Global NOR Flash Market:

Supply

• Analysis of Existing Capacity
• Analysis of Existing Players - Cypress, Macronix, Micron, Winbond...etc
• Forecast for Output Expansion

Demand

• AMOLED
• TDDI
• IOT

Conclusion
Join Semiconductor Research Market Intelligence
Stand on the Shoulders of Giants

If any inquiry, please contact: LatteChung@TrendForce.com
Thank You

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