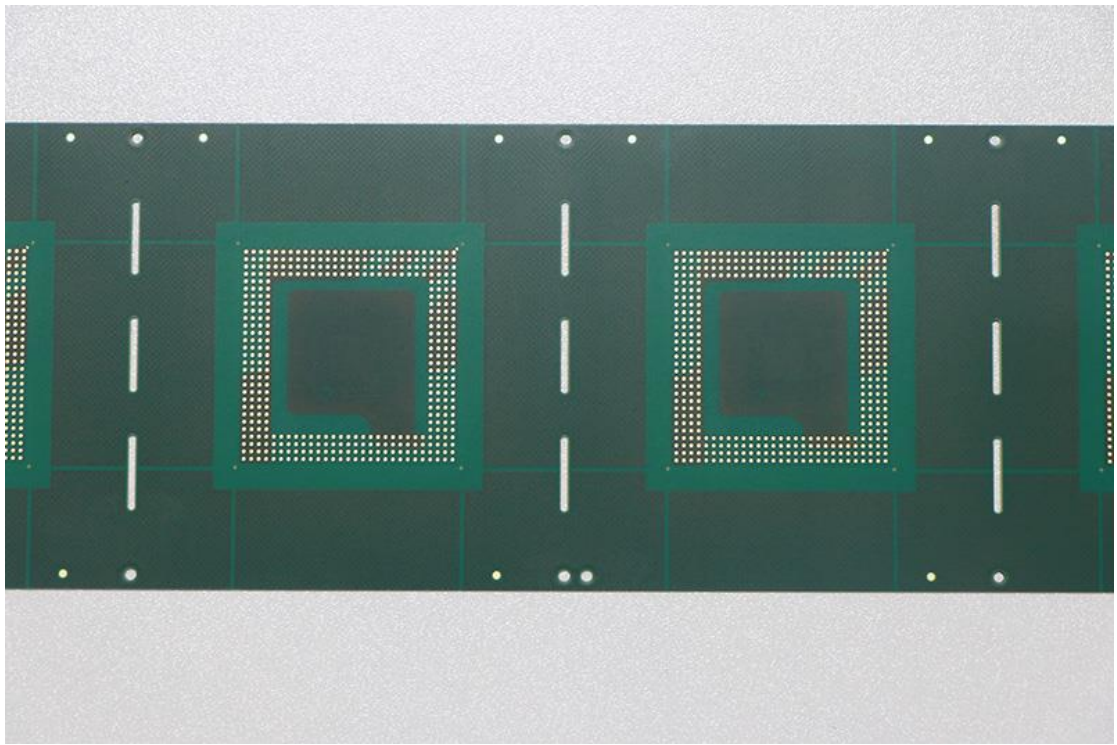




CPU chip carrier board

share

85251240453

Detail

CPU Chip Carrier Board Key Specifications

Parameter	Technical Specification
Layer Structure	4-layer BT Material Build-up
Finished Thickness	0.38mm Ultra-Slim Design
Surface Treatment	ENEPIG (Electroless Nickel/Palladium/Gold)
Key Processes	Ink Leveling, Backside Processing

Technical Details & Customer Benefits

1. 4-Layer BT Material Structure

- Material Properties:
 - Bismaleimide Triazine (BT) Resin: High thermal stability ($T_g \geq 200^{\circ}\text{C}$) and low dielectric loss ($D_k \leq 3.7 @ 10\text{GHz}$).
 - Black core material for EMI shielding and light-blocking in optoelectronic integration.
- Customer Benefits:
 - ✔ High-Frequency Performance: Minimizes signal distortion for CPU clock speeds

up to 5GHz.

✔ **Thermal Resilience:** Withstands reflow soldering at 260°C for 20+ cycles (IPC-6012 Class 3).

2. 0.38mm Ultra-Slim Thickness

- **Precision Engineering:**
 - **Laser Microvias:** 60µm diameter holes for dense interlayer connections.
 - **Total Thickness Variation (TTV):** ≤0.015mm across the board.
- **Customer Benefits:**
 - ✔ **Space-Saving:** Reduces vertical profile by 45% vs 0.8mm carriers.
 - ✔ **Enhanced Heat Dissipation:** 0.8W/mK thermal conductivity for efficient CPU cooling.

3. ENEPIG Surface Treatment

Layer	Function	Thickness
Nickel (Ni)	Prevents copper diffusion, enhances adhesion	3-5µm
Palladium (Pd)	Blocks nickel oxidation, improves solderability	0.05-0.1µm
Gold (Au)	Provides oxidation-free soldering surface	0.03-0.05µm

- **Key Advantages:**
 - ✔ **Wire Bonding Compatibility:** Supports both Au and Cu wire bonding.
 - ✔ **Long Shelf Life:** Maintains solderability for 12+ months in standard storage.

4. Critical Process Controls

- **Ink Leveling:**
 - LPI solder mask ensures ≤5µm **surface unevenness** for fine-pitch BGA/CSP assembly.
- **Backside Processing:**
 - Laser-marked fiducials with ±0.05mm alignment accuracy.
 - Optional backside EMI shielding (sputtered AlNi alloy).

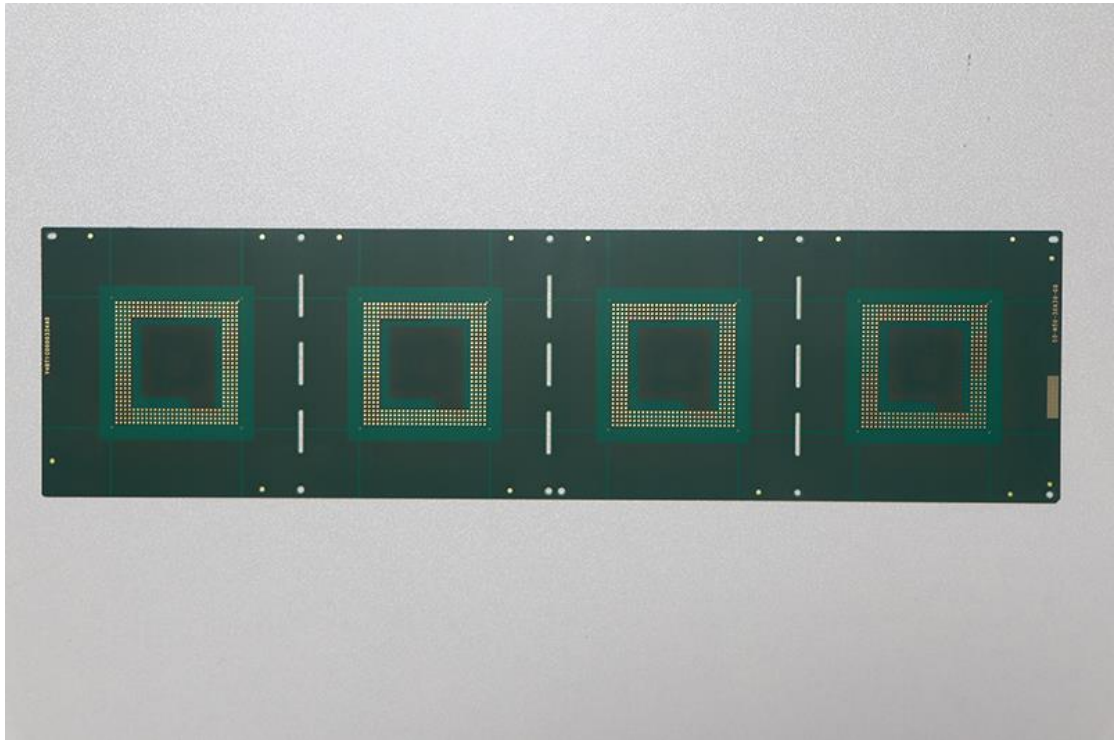
Performance Comparison

Feature	This Carrier Board	Standard FR-4
High-Speed Loss	0.15dB/cm @10GHz	0.45dB/cm @10GHz
Thermal Cycling	5,000 cycles (-55°C↔150°C)	2,000 cycles
CTE (Z-axis)	45 ppm/°C	70 ppm/°C

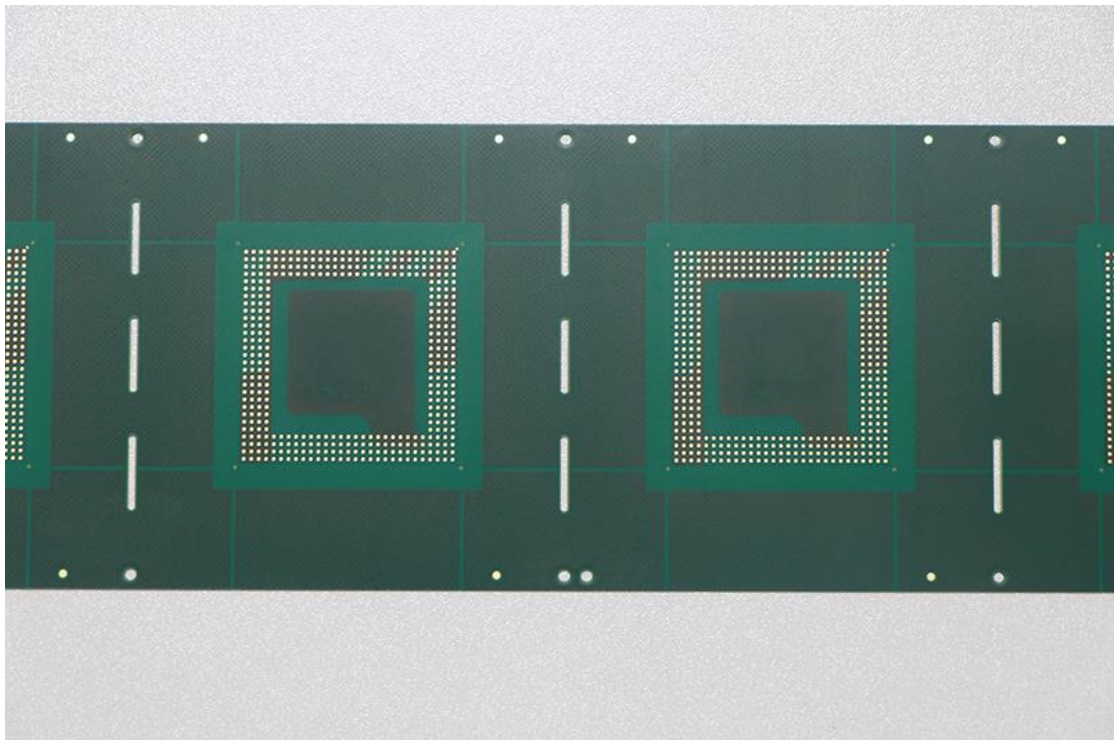
Recommended Applications

High-performance CPU/GPU packaging substrates
Server-grade LGA (Land Grid Array) sockets

5G baseband processing modules



4 layers of BT material, finished product 0.38mm plate thickness



CPU Chip Carrier Board Specifications

Key Features

Parameter	Specification	Customer Benefit
Layer Stackup	4-layer BT (Bismaleimide Triazine) material	✔ High thermal stability (Tg ≥200°C) for CPU applications
Thickness	0.38mm ultra-thin finished thickness	✔ Saves space in compact designs; improves heat dissipation
Surface Finish	Ink leveling (smooth LPI solder mask)	✔ Ensures flatness for fine-pitch component assembly
Backside Finish	"Beautiful" back process (clean & aesthetic)	✔ Professional appearance for visible components

Technical Breakdown

1. 4-Layer BT Material

- **Why It Matters for CPUs:**
 - **High-Temperature Resistance:** Withstands reflow soldering (260°C+) without warping.
 - **Low Signal Loss:** Dk ≤3.7 @10GHz—critical for high-speed data transmission.
 - **EMI Shielding:** Black core reduces interference in multi-chip modules.

2. 0.38mm Ultra-Thin Design

- **Precision Engineering:**
 - Laser-drilled microvias (60µm) enable dense interconnects.
 - TTV (Total Thickness Variation) ≤±0.01mm for consistent performance.
- **Customer Advantage:**
 - Fits space-constrained designs (e.g., slim laptops, IoT edge devices).

3. Ink Leveling & Backside Finish

- **Solder Mask Smoothing:**
 - ≤5µm surface unevenness—ideal for 0.35mm-pitch BGA components.
- **Aesthetic Backside:**
 - Laser-marked logos/serial numbers; no residual flux or scratches.

Performance Comparison

Metric	This Board	Standard FR-4
Thermal Conductivity	0.75W/mK	0.3W/mK
Max Operating Temp	200°C	130°C
Signal Loss @10GHz	0.18dB/cm	0.52dB/cm

Recommended Applications

- CPU/GPU substrate packaging
- High-performance computing (HPC) modules
- 5G mmWave antenna boards

