MULTI-TECHNOLOGY INTEGRATION USING PACKAGING AND ASSEMBLY SERVICES

CMC offers: ➢Packaging and assembly services including access to **die-on-die, die-in-package, multi-die-in-package, die-on-board, multi-die-on-board, or 3D stacking using wire bonding or flip-chip** ➢Expert engineering support and consultation. ➢Custom services on a case-by-case basis.

How to access these services: Contact Dr. Jianzeng Xu, Microsystems Integration and Packaging Engineer, at jxu@cmc.ca. For information on cost, please see Page 2.

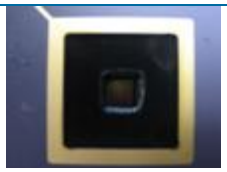
Benefits to you: ➢Create **working prototypes of your microsystems design, using state-of-the-art capabilities for system miniaturization, signal management, environmental protection and bio-systems compatibility**. ➢Use the range of packaging and assembly services offered to **integrate multi-technology components in a microsystem**.

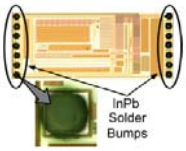
Packages and Processes Available for Your Custom Requirements

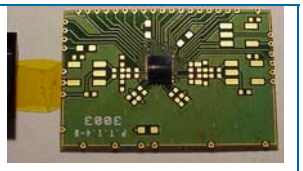
Package	Pin Count	Target Applications
DIP	40*	MEMS
CFP	24*, 44*, 80, 120	Digital, MEMS, RF, Mixed Signal
PGA	69*, 84*, 85*, 209*	MEMS, Digital, Mixed Signal
BGA	208	Digital, Mixed Signal
Glass Slide		RF, MEMS
Custom	Don't see what you need? Contact jxu@cmc.ca	

* Hermetic sealing available

Suppliers of processes include: Advanced Coating, Aspen, Corwil, CVInc, Micralyne, Spectrum Semiconductor







Process	Application Notes
Wafer/Die Bumping	
Solder	Self-aligned for higher placement tolerance in flip-chip assembly. Simple reflow flip-chip assembly process.
Au Stud	Under-bump-metallization not required. Compatible with devices such as MEMS or sensors that require low temperature bumping, flux-free assembly.
Flip-chip Attachment	
Various processes	Flip-chip attachment is recommended for requirements that include reduced package footprint, high I/O pin count, improved reliability, and improved electrical/thermal performance.
Die Attach	
Adhesive	For applications that require reduced die stress, low processing temperature.
Eutectic	For applications that require low contamination, hermeticity, good thermal/electrical conductivity, and operate at high temperature.
Wire Bonding	
Thermosonic Au Ball Bonding	Suitable for fragile die. Adjustable loop height.
Ultrasonic Al Wedge Bonding	Room temperature bonding suitable for temperature-sensitive die or substrate. Low wire loop height and fine bonding pitch.
Encapsulation	
Complete/Selective Encapsulation	For protection of the device from mechanical and environmental influences or for controlled environmental access to the device.
Parylene Coating	For applications requiring electrical insulation or biocompatibility.

Who Can Access CMC-Supported Services?

CMC-supported products and services are available to faculty members and graduate students at Canadian universities who have registered with CMC. Not yet registered? Complete an online registration form at: https://www1.cmc.ca/registration/welcome.php

What Is the Cost?

Cost depends on the option you use to obtain packaging and assembly services from CMC. There are three options:

1. When having a device manufactured through a regularly scheduled device fabrication run, you may choose packaging or assembly as an add-on service. In this case, cost is shared between the researcher and CMC. The CMC-supported fabrication schedule is available online at: http://www.cmc.ca/about/fab_schedule.html
2. CMC conducts quarterly granting competitions for packaging and assembly resources. In this case, cost is shared between the researcher and CMC. For further information please contact Salim Juma, Relationship Management Specialist, at salim@cmc.ca
3. You may also request packaging and assembly services directly by contacting Dr. Jianzeng Xu at jxu@cmc.ca. Researchers receive these requested services 'at cost'.

I Want to Test My Device

CMC offers standard test fixtures that conform to the package footprints listed on Page 1 and will help you characterize your device, using either a benchtop system at your test lab, or via test capability available through the National Microelectronics and Photonics Testing Collaboratory.

Go to https://www1.cmc.ca/clients/test/test.php to learn more and begin accessing the following:

- The National Microelectronics and Photonics Testing Collaboratory
- Test equipment available to researchers on a short- or long-term loan basis
- Test instrumentation that provides a means for characterizing MEMS device actuation

Further Information on Packages

For further information on the packages offered by CMC, please visit:
https://www1.cmc.ca/clients/prototyping/packaging_overview.php

About CMC

CMC Microsystems can accelerate your research by providing access to design and simulation tools, test capability, and device manufacturing. To help you achieve your research goals, our services are enhanced by engineering support and supplementary documentation and design kits. Learn more at http://www.cmc.ca/

Discuss Your Requirements with CMC and Learn More
To discuss your custom packaging and assembly needs with CMC, contact Dr. Jianzeng Xu at jxu@cmc.ca