opposing side of the first encapsulation side 210. The external interconnects 104 can be below and isolated from the terminal pads 106. Each of the external interconnects 104 preferably includes a tip 214, a post 216, and a termination 218. The termination 218 allows mounting to the next system levels (not shown), such as a printed circuit board or a further integrated circuit package system. Preferably, the termination 218 extends below the second encapsulation side 212 such that the encapsulation 102 does not impede the connections of the external interconnects 104 and the next system level.

The die-attach paddle 120 is provided having a first paddle side 222 and a second paddle side 224 on an opposing side of the first paddle side 222. The die-attach paddle 120 can include a recess 225 completely bounded by a non-horizontal extent at an obtuse angle with the first paddle side 222. The terminal pads 106 are formed adjacent to the die-attach paddle 120. Each of the terminal pads 106 include a first pad side 226 and a second pad side 228, wherein the second pad side 228 is at an opposing side of the first pad side 226, with the first pad side 226 preferably coplanar with the first encapsulation side 210.

An integrated circuit die 230 may be mounted with an adhesive 232 under the die-attach paddle 120, with a non-active side 234 of the integrated circuit die 230 facing the second paddle side 224. Electrical interconnects 236, such as bond wires or ribbon bonds, electrically connect an active side 238 of the integrated circuit die 230 to the second pad side 228 and a predetermined selection of the tip 214 of the external interconnects 104. It is understood that the terminal pads 106 can be electrically connected to various signals such as, for example, reference source, signals and ground.

The encapsulation 102 covers the integrated circuit die 230, the electrical interconnects 236, and the die-attach paddle 120. The first encapsulation side 210 preferably undergoes an isolation process, such as grinding, to break the contacts between the die-attach paddle 120 and the terminal pads 106 and to partially expose the first pad side 226 on the first encapsulation side 210 for connections to an additional integrated circuit device structure, not shown. Preferably, the post 216 and the termination 218 of the external interconnects 104 are exposed by the encapsulation 102 to allow mounting to the next system level (not shown), such as a printed circuit board or a further integrated circuit package system.

It has been discovered that the present invention provides the integrated circuit package system 100 with reduced profile and high I/O connectivity by providing the terminal pads 106 along the first encapsulation side 210 for allowing attachment to another

integrated circuit device at the terminal pads 106, while also allowing attachment of the integrated circuit package system 100 to a next system level connection at the second encapsulation side 212. This dual connectivity option increases the I/O connection to the

What is claimed is:

1. ~~An~~ A method for manufacturing an integrated circuit package system comprising:

forming a die-attach paddle, a terminal pad, and an external interconnect with the die-attach paddle having a recess completely bounded by a non-horizontal extent at an obtuse angle with a first paddle side and with the external interconnect below and isolated from the terminal pad;

connecting an integrated circuit die with the terminal pad and the external interconnect; and

forming an encapsulation, having a first side and a second side at an opposing side to the first side, surrounding the integrated circuit die with the terminal pad exposed at the first side and the external interconnect extending below the second side.

2. The ~~system~~method as claimed in claim 1 further comprising partial cutting the encapsulation adjacent to the terminal pad wherein the partial cutting includes partial sawing, isolation drilling, grinding, and etching.

3. The ~~system~~method as claimed in claim 1 further comprising partial cutting the encapsulation between the die-attach paddle and the terminal pad wherein the partial cutting includes partial sawing, isolation drilling, grinding, and etching.

4. The ~~system~~method as claimed in claim 1 wherein forming the die-attach paddle and the terminal pad includes forming the terminal pad integral with the die-attach paddle.

5. The ~~system~~method as claimed in claim 1 wherein forming the encapsulation includes exposing the die-attach paddle coplanar with the terminal pad.

6. ~~An~~ A method for manufacturing an integrated circuit package system comprising:

forming a die-attach paddle, a terminal pad, and an external interconnect with the die-attach paddle having a recess completely bounded by a non-horizontal extent at an obtuse angle with a first paddle side and with the external interconnect below and isolated from the terminal pad;

mounting an integrated circuit die to the die-attach paddle;

connecting the integrated circuit die with the terminal pad and the external interconnect; and

forming a first encapsulation, having a first side and a second side at an opposing side to the first side, surrounding the integrated circuit die with the terminal pad exposed at the first side and the external interconnect extending below the second side.

7. The ~~system~~method as claimed in claim 6 wherein forming the terminal pad includes forming multiple rows of the terminal pads.

8. The ~~system~~method as claimed in claim 6 further comprising mounting an integrated circuit device over the terminal pad.

9. The ~~system~~method as claimed in claim 6 further comprising:

connecting an integrated circuit device ~~with~~to the terminal pad; and

forming a second encapsulation covering the integrated circuit device, the terminal pad, and the first encapsulation with the external interconnect partially exposed.

10. The ~~system~~method as claimed in claim 6 further comprising:

providing a carrier with an electrical connector attached thereunder;

connecting the external interconnect over the carrier;

connecting an integrated circuit device ~~with~~to the terminal pad; and

forming a second encapsulation covering the integrated circuit device, the terminal pad, the first encapsulation, and the external interconnect over the carrier.

11. An integrated circuit package system comprising:

a die-attach paddle having a recess completely bounded by a non-horizontal extent at an obtuse angle with a first paddle side;

a terminal pad adjacent with the die-attach paddle;

an external interconnect below and isolated from the terminal pad;

an integrated circuit die connected with the terminal pad and the external interconnect; and

an encapsulation, having a first side and a second side at an opposing side to the first side, surrounding the integrated circuit die with the terminal pad exposed at the first side and the external interconnect extending below the second side.

12. The system as claimed in claim 11 wherein the encapsulation includes a partial cut adjacent to the terminal pad.

13. The system as claimed in claim 11 wherein the encapsulation includes a partial cut between the die-attach paddle and the terminal pad.

14. The system as claimed in claim 11 wherein the die-attach paddle and the terminal pad are integral to each other.

15. The system as claimed in claim 11 wherein the die-attach paddle is exposed

from the encapsulation and coplanar with the terminal pad.

16. The system as claimed in claim 11 wherein the integrated circuit die is mounted to the die-attach paddle.

17. The system as claimed in claim 16 wherein the terminal pad includes multiple rows of the terminal pads.

18. The system as claimed in claim 16 further comprising an integrated circuit device over the terminal pad.

19. The system as claimed in claim 16 further comprising:

an integrated circuit device ~~with~~connected to the terminal pad; and

a package encapsulation covering the integrated circuit device, the terminal pad, and the encapsulation with the external interconnect partially exposed.

20. The system as claimed in claim 16 further comprising:

a carrier having an electrical connector thereunder and the external interconnect mounted over the carrier;

an integrated circuit device connected ~~with~~to the terminal pad; and

a package encapsulation covering the integrated circuit device, the terminal pad, the encapsulation, and the external interconnect over the carrier.