CLAIMS

1. An interposer assembly for forming redundant electrical connections with contact pads on substrates positioned above and below the assembly, the assembly comprising: an insulating plate having top and bottom sides and a plurality of passages extending through the thickness of the plate, each passage having a pair of opposed parallel sidewalls; and a plurality of metal contacts, each contact having a uniform thickness, each contact disposed in one of said passages and having a pair of opposed contact sides, each contact comprising a first cantilever spring arm extending from a contact base located within a passage to a contact end located within the passage and proximate a passage sidewall, the first cantilever spring arm comprising a pair of strips defining a first contact slot, each said strip extending a non-uniform strip width extending between said contact side and a slot edge, each said slot edge proximate said first contact slot, said first contact slot extending from within the passage along the first cantilever spring arm and outside the passage.

2. The interposer assembly of claim ~~27~~1 wherein each said strip is v-shaped.

3. The interposer assembly of claim 2 wherein said first contact slot comprises a non-uniform slot width extending between opposed said slot edges.

4. The interposer assembly of claim 3 wherein said first contact slot has an elongate oval shape.

5. The interposer assembly of claim 4 wherein the first cantilever spring arm further comprising a first pair of contact points located outside the passage, each contact point located proximate a said slot edge and away from a said contact side.

6. The interposer assembly of claim 5 wherein the first cantilever spring arm is curved.

~~3.~~ 7. The interposer assembly of claim ~~2~~6 wherein a first pair of contact points is located above the plate.

~~4.~~ 8. The interposer assembly of claim ~~3~~7 wherein each contact point is continuous with the first slot edges.

~~5. The interposer assembly of claim 4~~ 9. The interposer assembly of claim 8 wherein the contact comprises a second cantilever spring arm extending from the contact base and away from the first cantilever spring arm, the second cantilever spring arm extending to a contact end located within the passage and proximate a passage sidewall, the second cantilever spring arm comprising a second contact slot, the second contact slot comprising a pair of strips defining a second contact slot, each said strip extending a non-uniform strip width between said contact side and a slot edge, each said slot edge proximate said second contact slot, said second contact slot extending from within the passage along the second cantilever spring arm and outside the passage.

10. The interposer assembly of claim 8 wherein the contact comprises one or more solder tabs joined to the contact base, the solder tabs located proximate the bottom side of the plate, the solder tabs joined to a solder ball proximate the plate bottom side.

~~6.~~ 11. The interposer assembly of claim ~~5~~10 wherein one or more passages comprise a passage bottom wall located between the plate top and bottom sides and extending between said sidewalls, one or more tab passages extending through the passage bottom wall to a solder pocket located proximate the plate bottom side, said one or more solder tabs said first contact slot extending from within the passage along the first cantilever spring arm and outside the passage located in said one or more tab passages, said solder ball located in said solder pocket.

~~7.~~ 12. The interposer assembly of claim ~~6~~11 wherein said solder pocket comprises a solder pocket mouth larger than said solder pocket.

~~8. The interposer assembly of claim 4 wherein the contact comprises a second cantilever spring arm extending from the contact base and away from the first cantilever spring arm, the second cantilever spring arm extending to a contact end located within the passage and proximate a passage sidewall, the second cantilever spring arm comprising a second contact slot, the second contact slot comprising a pair of strips defining a second contact slot, each said strip extending a non-uniform strip width between said contact side and a slot edge, each said slot edge proximate said second contact slot, said second contact slot extending from within the passage along the second cantilever spring arm and outside the passage.~~

~~9.~~ 13. An interposer assembly for forming electrical connections between contacts on opposed substrates, the assembly comprising an insulating plate having a top surface, a bottom surface, a thickness between the top surface and the bottom surface and a number of through passages, each passage having a pair of opposed parallel sidewalls; a plurality of one-piece conductive contacts members, each contact member having a uniform thickness and opposed contact sides, each contact member extending generally from a contact top to a contact bottom and comprising a contact base in a through passage, a first cantilever spring arm extending from the base to a first contact end, a second cantilever spring arm extending from the base to a ~~secondcontact~~second contact end, the first cantilever spring arm comprising first and second spring arm strips, each spring arm strip extending a non-uniform width between a contact side and a slot edge, said first and second strips defining a first slot extending through the contact member, the first slot located between the opposed contact sides and proximate the contact top, the contact base and first cantilever spring arm comprising a continuous one-piece metal conductor extending from the contact top to the contact bottom and proximate a first passage sidewall.

~~10.~~ 14. The interposer assembly of claim ~~3~~13 wherein the first and second spring arm strips are V-shaped.

15. The interposer assembly of claim 14 wherein the first slot comprises a non-uniform slot width extending between opposed said slot edges.

16. The interposer assembly of claim 15 wherein the first slot has an elongate oval shape.

17. The interposer assembly of claim 16 wherein the first slot comprises a pair of top contact points, each top contact point adjacent a slot edge and extending away from the contact member and contact top.

18. The interposer assembly of claim 17 wherein the first cantilever spring arm and the second cantilever spring arm comprise a discontinuous two-piece metal conductor extending from the contact top to the contact bottom and proximate a second passage sidewall opposed to said first passage sidewall.

~~11.~~ 19. The interposer assembly of claim ~~10~~18 wherein the contact top is located above the insulating plate top surface.

~~12.~~ 20. The interposer assembly of claim ~~11~~19 wherein each top contact point is continuous with a first slot edge.

~~13.~~ 21. The interposer assembly of claim ~~12~~20 wherein the second cantilever spring arm comprises a second slot extending through the contact member.

22. The interposer assembly of claim 21 wherein the contact bottom is located below the insulating plate bottom surface.

23. The interposer assembly of claim 20 wherein the contact comprises two solder tabs joined to the contact base, the solder tabs located proximate the contact bottom and joined to a solder ball proximate and engaging the bottom side of the plate.

~~14.~~ 24. The interposer assembly of claim ~~13~~23 wherein one or more passages comprise a passage bottom wall located between the plate top and bottom sides and extending between said sidewalls, two tab passages extending through the passage bottom wall to a solder pocket located proximate the plate bottom side, each solder tabs located a tab passage, said solder ball located in said solder pocket.

~~15.~~ 25. The interposer assembly of claim ~~14~~24 wherein said solder pocket comprises a solder pocket mouth larger than said solder pocket.

~~16. The interposer assembly of claim 12 wherein the second cantilever spring arm comprises a second slot extending through the contact member.~~
~~17. The interposer assembly of claim 16 wherein the contact bottom is located below the insulating plate bottom surface.~~
~~18.~~ 26. An interposer assembly for forming electrical connections between contacts on opposed substrates, the assembly comprising an insulating plate having a top surface, a bottom surface, a thickness between the top surface and the bottom surface and a number of through passages, each passage comprising a pair of opposed sidewalls, a plurality of one-piece conductive contacts members, each contact member located in a through passage and each contact member comprising a uniform thickness, opposed contact sides, a contact base, a first cantilever spring arm extending from the contact base to a contact top and to a first

contact end, the first cantilever spring arm comprising a pair of contact strips, the pair of contact strips comprising a pair of slot edges extending through the contact member ~~slot edge~~, the slot edges defining a contact slot having a non-uniform slot width extending between opposed slot edges, the contact base and first cantilever spring arm comprising a continuous one-piece conductor extending from the contact top to the contact bottom and proximate a first passage sidewall.

~~19.~~ 27. The interposer assembly of claim ~~35~~26 wherein the contact slot is V-shaped.

28. The interposer assembly of claim 27 wherein each contact strip comprises a non-uniform strip width extending between a contact side and a contact edge.

29. The interposed assembly of claim 28 wherein the contact slot comprises an elongate oval shape.

30. The interposed assembly of claim 29 wherein each slot edge comprises a contact point, each contact point extending away from the contact member and contact top, said contact point located above the plate top surface.

31. The interposer assembly of claim 30 wherein the contact comprises a second cantilever spring arm extending from the contact base, the second cantilever spring arm extending to a second contact end, the first cantilever spring arm and the second cantilever spring arm comprising a discontinuous two-piece metal conductor extending from the contact top to the contact bottom and proximate a second passage sidewall opposed to said first passage sidewall.

~~20. The interposer assembly of claim 19~~32. The interposer assembly of claim 31 wherein the second cantilever spring arm comprises a second pair of contact strips, the second pair of contact strips comprising a second pair of slot edges extending through the contact member slot edge, said second pair of slot edges defining a second contact slot.

33. The interposer assembly of claim 31 wherein the contact comprises two solder tabs joined to the contact base, the solder tabs located proximate the contact bottom.

~~21.~~ 34. The interposer assembly of claim ~~20~~33 wherein one or more passages comprise a passage bottom wall located between the plate top and bottom sides and extending between said sidewalls, two tab passages extending through the passage bottom wall to a solder pocket located proximate the plate bottom side, each solder tabs located in a tab passage, said solder ball located in said solder pocket.

~~22.~~ 35. The interposer assembly of claim ~~21~~34 wherein said solder pocket comprises a solder pocket mouth larger than said solder pocket.

~~23. The interposer assembly of claim 19 wherein the second cantilever spring arm comprises a second pair of contact strips, the second pair of contact strips comprising a second pair of slot edges extending through the contact member slot edge, each second slot edge defining a second contact slot.~~

~~24. The interposer assembly of claim 1 wherein each said strip is v-shaped.~~

~~25. The interposer assembly of claim 24 wherein said first contact slot comprises a non-uniform slot width extending between opposed said slot edges.~~

~~26. The interposer assembly of claim 25 wherein said first contact slot has an elongate oval shape.~~

~~27. The interposer assembly of claim 26 wherein the first cantilever spring arm further comprising a first pair of contact points located outside the passage, each contact point located proximate a said slot edge and away from a said contact side.~~

~~28. The interposer assembly of claim 9 wherein the first and second spring arm strips are V-shaped.~~

~~29. The interposer assembly of claim 28 wherein the first slot comprises a non-uniform slot width extending between opposed said slot edges.~~

~~30. The interposer assembly of claim 29 wherein the first slot has an elongate oval shape.~~

~~31. The interposer assembly of claim 30 wherein the first slot comprises a pair a pair of top contact points, each top contact point adjacent a slot edge and extending away from the contact member and contact top.~~

~~32. The interposer assembly of claim 18 wherein the slot edges are V-shaped.~~

~~33. The interposer assembly of claim 32 wherein each contact strip comprises a non-uniform strip width extending between a contact side and a contact edge.~~

~~34. The interposed assembly of claim 33 wherein the contact slot comprises an elongate oval shape.~~

~~35. The interposed assembly of claim 34 wherein each slot edge comprises a contact point, each contact point extending away from the contact member and contact top, said contact point located above the plate top surface.~~